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THERMODYNAMIC PROPERTIES OF STEAM

INCLUDING

DATA FOR THE LIQUID AND SOLID PHASES

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PREFACE

More than six years have elapsed since the appearance of the Keenan Steam Tables and Mollier Diagram.[1]* The basis of the tables was a considerable body of new data provided in course by the investigators carrying out the steam research program sponsored by the American Society of Mechanical Engineers' Special Committee on the Thermal Properties of Steam.

The available data on water are now considerably increased due to the practical completion of the various series of investigations in progress, not only in this country but abroad. Moreover, in September 1934 a third international conference on steam properties was held during which it became evident that a remarkably close agreement existed in the results of the various investigators. This happy condition is in evidence through the greatly reduced tolerances assigned to the enlarged skeleton table produced by the Special Committee of experts assigned to discuss and compare the data submitted to the conference. The conclusion is therefore justified that our knowledge of the properties of water, after more than a decade of intensive research in the United States, England, Germany and Czechoslovakia, has reached a stage where further delay in preparing revised tables is unnecessary. There is indeed satisfactory evidence that a revised set of tables may be expected to possess a high degree of permanence.

The present tables are computed from entirely new formulations of the properties of water. For the most part the formulations are analytical but there are certain regions where recourse to graphical methods was necessary in default of a knowledge of analytical forms suitable for our requirements. The region where graphical correlation was employed is for volumes less than ten cubic centimeters per gram. The results appear satisfactory, at least as far as can be judged by applying the usual criteria of thermodynamic consistency.

The units employed, the quantities tabulated, the intervals and range of the tables, together with other details, were decided upon largely through correspondence with a considerable number of those who have constructed earlier tables, as well as those who use them for various purposes. We acknowledge with hearty thanks the many valuable suggestions received, albeit the difficulty or even impossibility of carrying out every suggestion will be readily appreciated. Within the limitations of the size of the volume, we have however included tables giving the viscosity, the heat conductivity, compressed liquid properties, data on ice and its vapor, isentropic expansion exponents, and certain thermometric calibration data, while at the same time retaining the temperature-scale conversion table, logarithm tables, and conversion factor tables of the 1930 volume. Certain charts of the specific heat hitherto not available are included. They show the extraordinarily rapid changes and the large values of the quantity corresponding to volumes at and near the critical state. The scales of the charts are selected to permit reasonably accurate reading of the variables. The range of temperature (1600° F) and of pressure (5500 lb./in.^{2}) of the tables is also greater than the 1930 tables, and is sufficient, we believe, for a long period. The inclusion of data for the liquid phase is

* Superior numbers refer to items in the Bibliography on page 25.

an innovation made possible by the recent exact measurements of heat quantities and specific volumes. The sources of all the data employed are briefly discussed with references to the devices of formulation employed and the analytical expressions found to be serviceable.

We take satisfaction in expressing our deep sense of obligation to those who have labored many years to obtain exact measurements on the properties of water and without which the present compilation of properties would evidently be impossible. Their work has without doubt led to a knowledge of the properties of water far exceeding that for any other substance.

The actual labor of computation and the control of the organization set up for the work has been in charge of Doctor Carol Anger Rieke. The accuracy realized in computation and the rapid progress of the work are due to her patience and skill.

JOSEPH H. KEENAN
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CAMBRIDGE, *September*, 1936

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INTRODUCTION

1. The Temperature Scale and Some General Equations

The concept of a scale of temperature independent of the properties of substances is one of the accompaniments of the development of the second empirical principle of thermodynamics. Sadi Carnot first showed (1824) that for a reversibly operating machine withdrawing heat in amount Q_1 at fixed temperature t_1 and rejecting heat Q_2 at a lower fixed temperature t_2, the ratio Q_1/Q_2 is the same for all working substances. It is a universal function, $\phi(t_1, t_2)$, of the fixed temperatures.

The accepted solution of the function $\phi(t_1, t_2)$ is $Q_1/Q_2 = T_1/T_2$, and T_1 and T_2, called thermodynamic temperatures, must be determined on the basis of the exact validity of Carnot's proposition. Further progress requires a knowledge of the physical properties of substances, and the accumulated knowledge of gas properties has led to the concept of the ideal gas whose pressure-volume properties are given in relation to temperature by the simple equation $pv = RT$ where R is a universal constant when the mole is the unit of mass. The energy of the ideal gas is moreover dependent on temperature alone. With these specifications it is possible to identify the T used to describe the properties of the ideal gas with the thermodynamic temperature.

The hypothetical ideal gas represents a state of matter into which an actual gas may be brought at zero pressure, as far as the pressure may be given by the relation $pv = RT$. This statement implies that the actual gas will show approximately ideal properties at finite pressures. Nitrogen, for example, at the ice point and one atmosphere pressure is smaller in volume compared to the ideal gas by a part in 1450. At 100°, however, it is larger in volume by a part in 7300. Some gases show much larger deviations at the same temperatures but the example suffices to indicate the possibility of using suitably chosen gases as thermometric fluids. The expansion of a gas at constant pressure or the pressure increase at constant volume offer alternate modes of use although the constant volume type is the more frequently used. It is important to observe, in accordance with the ideal gas concept, that if the indications of temperature with the gas thermometer are carried out for any fixed temperature at a series of successively lower pressures the indicated temperatures will converge toward a fixed value. In the limit of zero pressure, arrived at by extrapolation of the indicated temperatures, the number obtained will be the thermodynamic temperature. The test of the entire scheme depends evidently on whether *different* thermometric gases lead to the same limiting temperature.* The increasingly precise measurements made over more than a century have only served to deepen the conviction that the entire structure of ideas and concepts is sound.

* In practice a "correction" is applied to the gas thermometer reading to obtain the thermodynamic centigrade temperature reading. The correction may be and usually is obtained analytically from a formulation of the high pressure measurements of p, v properties as a function of the gas scale temperature. The formulation of whatever kind must yield the relation $pv = RT$ for zero pressure to keep within the circle of ideas outlined above.

Of course any of the thermodynamic equations involving the second principle will contain T and may be used to determine the temperature, but convenience and ultimate precision have led to the use of gas thermometers where the direct indications are very close to the thermodynamic temperatures.*

The primary thermometry fixed points are the equilibrium temperature of ice (zero centigrade) in contact with water saturated with air at one atmosphere pressure, and the boiling point of water at one international† atmosphere (100° centigrade). Using these fixed points and the gas thermometer, the boiling point of sulphur has been measured by many observers in the past fifty years. The values found vary, showing a maximum difference of about 0.3° C for the constant volume thermometer. In 1927 by international agreement 444.60° C was selected to serve as the normal or thermodynamic centigrade temperature for boiling sulphur. The international scale[2] is reproduced by a platinum resistance thermometer of specified characteristics calibrated at the ice point and normal boiling points of water and sulphur and interpolated by the Callendar difference formula.

The precise degree of approximation of the international scale to the thermodynamic scale is not yet definitely known. It now seems likely, however, that some years will elapse before sufficient new findings have accumulated to bring about improved specifications for an international temperature scale.‡

The international temperature scale has been used in all the steam investigations of recent years and is the scale of the present tables. A required fundamental constant is the thermodynamic temperature of the ice point. We have used 273.16 (491.69° F) for this temperature and our thermodynamic temperature T is given by the equation $T = (273.16 + t°\text{ C})$ where t is the centigrade temperature on the international scale. On the Fahrenheit thermodynamic scale we have $T = (459.69 + t°\text{ F})$. The uncertainty in T_0 or the number 273.16 may be as much as 0.02°.

The principal thermodynamic function employed in the tables is the chi (χ) function of Gibbs for which we use the symbol h, and the name enthalpy. The same quantity is often called total heat and heat content. The following equations relate the quantity to the energy u, the entropy s, the pressure p, the volume v, the reciprocal thermodynamic temperature tau (τ) and the usual specific heats c_p, c_v, and c_{sat}.

$$h = u + pv \quad \text{or} \quad h_1 - h_2 = u_1 - u_2 + (pv)_1 - (pv)_2 \tag{1}$$

$$\left.\begin{aligned} dh &= T\,ds + v\,dp \\ dh &= c_p\,dT - \left[T\left(\frac{\partial v}{\partial T}\right)_p - v\right]dp \\ &= c_p\,dT + \left(\frac{\partial (v\tau)}{\partial \tau}\right)_p dp \\ dh &= \left[c_v + v\left(\frac{\partial p}{\partial T}\right)_v\right]dT + \left(\frac{\partial (v\tau)}{\partial \tau}\right)_p \left(\frac{\partial p}{\partial v}\right)_T dv \end{aligned}\right\} \tag{2}$$

* At 500° C the constant volume nitrogen thermometer filled to one atmosphere pressure at the ice point will read, at most, 0.14° C lower than the thermodynamic scale.

† The international atmosphere is the pressure produced by a column of mercury 760 mm. high at zero centigrade where the gravitational acceleration is 980.665 cm./sec.^{2}

‡ Investigations directed to a solution of this problem for temperatures above zero centigrade were started at the Reichsanstalt with refinements in apparatus following the war. In 1920 similar work was begun at the Research Laboratory of Physical Chemistry at M. I. T. Professor James A. Beattie, who is carrying on the investigations, informs us that his data bearing on the relation between the international scale and the thermodynamic scale will be published shortly.

$$\left.\begin{aligned} c_p &= \left(\frac{\partial u}{\partial T}\right)_p + p\left(\frac{\partial v}{\partial T}\right)_p;\ c_v = \left(\frac{\partial u}{\partial T}\right)_v \\ c_{sat} &= c_p - T\left(\frac{\partial v}{\partial T}\right)_p \frac{dp}{dt} = c_v + T\left(\frac{\partial p}{\partial T}\right)_v \frac{dv}{dT} \end{aligned}\right\} \tag{3}$$

A few derived quantities are also useful and may be easily formed. They are as follows:

$$(h \text{ constant});\ \left(\frac{\partial T}{\partial p}\right)_h = \mu = -\frac{\left(\frac{\partial (v\tau)}{\partial \tau}\right)_p}{c_p} \tag{4}$$

$$c_p = \left(\frac{\partial h}{\partial T}\right)_p;\quad -\mu c_p = \left(\frac{\partial h}{\partial p}\right)_T = \left(\frac{\partial (v\tau)}{\partial \tau}\right)_p \tag{5}$$

$$c_p = c_{p_r} - \int T\left(\frac{\partial^2 v}{\partial T^2}\right)_p dp = c_{p_r} - \frac{\partial}{\partial T}\int \left(\frac{\partial (v\tau)}{\partial \tau}\right)_p dp \tag{6}$$

$$\left.\begin{aligned} s - s_r &= \int \frac{dh}{T} - \int v\, dp \\ \left(\frac{\partial s}{\partial p}\right)_T &= -\left(\frac{\partial v}{\partial T}\right)_p;\ \left(\frac{\partial s}{\partial T}\right)_p = \frac{c_p}{T} \end{aligned}\right\} \tag{7}$$

$$v = \left[v_r \frac{T}{T_r} - T\int \mu c_p\, d\tau\right]_p \tag{8}$$

The subscript r refers to a reference state at the constant pressure p. The relation between similar quantities corresponding to two phases in equilibrium is frequently required. The following equations are of interest wherein subscript g refers to the saturated vapor and f to the saturated liquid. The letter L designates enthalpy change of evaporation. Subscript small s refers to the saturation condition.

$$\left.\begin{aligned} c_{pg} - c_{pf} &= \frac{dL}{dT} - \left[\left(\frac{\partial (v\tau)}{\partial \tau}\right)_{pg} - \left(\frac{\partial (v\tau)}{\partial \tau}\right)_{pf}\right]\frac{dp}{dT} \\ L &= T\frac{dp}{dT}(v_g - v_f) \\ c_{sg} - c_{sf} &= \frac{dL}{dT} - \frac{L}{T} = -\tau\left(\frac{d(L\tau)}{d\tau}\right) \end{aligned}\right\} \tag{9}$$

The first of equations (9) may be written in terms of the Joule-Thomson coefficient, using the second of equations (5), as follows:

$$c_{pg} - c_{pf} = \frac{dL}{dT} + \left[(\mu c_p)_g - (\mu c_p)_f\right]\frac{dp}{dT}. \tag{10}$$

The sections to follow contain a brief discussion of the data upon which the tables are based and the methods used in deriving properties from them. The first exact measurements on steam and water properties were made by Regnault about ninety years ago. During the two decades following 1890, Rowland, Dieterici, Smith, Griffiths, Henning, Joly, Knoblauch, Holborn, Scheel, Heuse, Jacob and others contributed data which after thorough correlation by L. S. Marks and H. N. Davis supplied the basis for the Marks and Davis tables of 1908. Since a comprehensive review of the data available at that time is contained in the Marks and Davis volume it is unnecessary to refer here to the work on steam properties which preceded its publication.

2. The Vapor Pressure of Liquid Water and of Ice

The measurements of Henning,[3] Holborn and Henning,[4] Holborn and Baumann,[5] Scheel and Heuse,[6] Egerton and Callendar,[7] Osborn, Stimson, Fioch and Ginnings,[8] and Smith, Keyes and Gerry[9] on the vapor pressure of water are in remarkably close agreement to the critical temperature (374.11° M. I. T.; 374.20° Reichsanstalt). Below 100° the results of Henning, and Scheel and Heuse as compiled in the Wärmetabellen[10] may be accepted as satisfactory, though the results of measurements obtained prior to 1928 should of course be changed to conform to the international scale of temperature.

The data above 100° C have been discussed in detail by the recent investigators and the great bulk of the measurements are included in a range of pressure variation corresponding to ±0.02° C. This degree of accord in the work done in different laboratories has never before been attained and is convincing evidence of the satisfactory state of the pressure measuring technique employed and of the reproducible qualities of the modern platinum resistance thermometer. The smoothed results of any of the investigations would be satisfactory. We have used the formulas (1) and (2) taken from the paper by Smith, Keyes and Gerry[9] which reproduce pressures in satisfactory agreement with the pressures given in the Wärmetabellen down to 10° C. Below 10° we have taken the values directly from the Wärmetabellen.

$$\log_{10}\frac{p_c}{p} = \frac{x}{T}\left[\frac{a + bx + cx^3 + ex^4}{1 + dx}\right] \qquad \begin{matrix}\text{Formula (1) S, K, and G.}\\ \text{50° C to 374.11° C}\end{matrix} \tag{11}$$

where p is the vapor pressure in int. atm.

p_c is the critical pressure = 218.167 int. atm.

T is the temperature in degrees Kelvin = $t(°C) + 273.16$

x is $(T_c - T)$ where T_c is the critical temperature in deg. K. (647.27 deg. K.)

$a = 3.3463130, \quad b = 4.14113 \times 10^{-2}, \quad c = 7.515484 \times 10^{-9}$

$d = 1.3794481 \times 10^{-2}, \quad e = 6.56444 \times 10^{-11}$

$$\log_{10}\frac{p_c}{p} = \frac{x}{T}\left[\frac{a' + b'x + c'x^3}{1 + d'x}\right] \qquad \begin{matrix}\text{Formula (2) S, K, and G.}\\ \text{10° C to 150° C}\end{matrix} \tag{12}$$

where p is the vapor pressure in int. atm.

$p_c = 218.167$ int. atm.

$T = t°\text{ C} + 273.16$

$x = (T_c - T) \qquad T_c = 647.27$

$a' = 3.2437814, \qquad b' = 5.86826 \times 10^{-3}$

$c' = 1.1702379 \times 10^{-8}, \quad d' = 2.1878462 \times 10^{-3}$

Derivatives of the pressure with respect to temperature were required for the thermodynamic intercomparison of data and these were obtained from the differentiated form of equations (11) and (12).[11, 12]

E. W. Washburn[13] has correlated the vapor-pressure data for sub-cooled water and for ice. The primary data are not as consistent as would be desirable for many purposes but supply every need of the tables excluding possibly applications in low temperature humidity control.

3. Properties of Water Vapor

Prior to the recent American steam research program the 1905 measurements of Knoblauch, Linde and Klebe were the only specific volume measurements available. They extend from about 100° C to 190° C and to 6 atm. The recent measurements by Keyes, Smith and Gerry[12] cover the range 195° C to 460° C and extend to pressures of more than 350 atm.

The published formulation of the data expresses the volume as a function of pressure and temperature valid to 10 cc. per gram, which corresponds to about 344° C on the vapor saturation side of the steam dome. Formula 9 of the Keyes, Smith and Gerry paper is as follows:

$$v = \frac{4.55504\ T}{p} + B$$

p in int. atm.
v in cm.^{3}/g.
$T = 273.16 + t°\text{ C} = \tau^{-1}$
mol. wt. H_2O 18.0154

$$B = B_0 + B_0^2 g_1(\tau)\,\tau p + B_0^4 g_2(\tau)\,\tau^3 p^3 - B_0^{13} g_3(\tau)\,\tau^{12} p^{12} \tag{13}$$

$$B_0 = 1.89 - 2641.62\,\tau\ 10^{30876\tau^2}$$

$$g_1(\tau) = 82.546\tau - 1.6246 \cdot 10^5 \tau^2$$

$$g_2(\tau) = 0.21828 - 1.2697 \cdot 10^5 \tau^2$$

$$g_3(\tau) = 3.635 \cdot 10^{-4} - 6.768 \cdot 10^{64} \tau^{24}$$

The average deviation of the observed volume data from this formula above 10 cm.^{3}/g is on the whole less than one part in a thousand. The formula is used to compute all volumes in the table in that region.

The enthalpy of the vapor in this same region is obtained through equation (13) by integrating the relationship,

$$\left(\frac{\partial h}{\partial p}\right)_t = \left(\frac{\partial (v\tau)}{\partial \tau}\right)_p.$$

It is evident from equation (13) that

$$\left(\frac{\partial (v\tau)}{\partial \tau}\right)_p = \left(\frac{\partial (B\tau)}{\partial \tau}\right)_p,$$

and that B may be expressed as

$$B = B_0 + \phi_1 p + \phi_3 p^3 + \phi_{12} p^{12}, \tag{13A}$$

where B_0, ϕ_1, ϕ_3 and ϕ_{12} are pure temperature functions. Then the constant temperature coefficient becomes

$$\left(\frac{\partial h}{\partial p}\right)_t = F_0 + F_1 p + F_3 p^3 + F_{12} p^{12},$$

where F_1, F_3 and F_{12} are each equal to $\partial(\phi\tau)/\partial\tau$ in terms of the corresponding ϕ, and F_0 is $\partial(B_0\tau)/\partial\tau$. Integrating, we get

$$h = F_0 p + \frac{F_1}{2} p^2 + \frac{F_3}{4} p^4 + \frac{F_{12}}{13} p^{13} + F', \tag{14}$$

where F' is a pure temperature function and is identified upon substituting $p = 0$ in the enthalpy equation (14). Therefore, we may write

$$F' = h_{p=0} = \int_{T=273.16}^{T} c_{p_0}\, dT + h',$$

where c_{p_0} is the specific heat at zero pressure and h' is an arbitrary constant.

The direct measurement of c_{p_0}, a pure temperature function, is of course an impossibility, but the quantity may be obtained by using measurements of pressure, volume and temperature to compute values of $\int T \left(\frac{\partial^2 v}{\partial T^2}\right)_p dp$ needed to obtain it from c_p measurements by use of the Clausius relation

$$c_{p_0} = c_p + \int T \left(\frac{\partial^2 v}{\partial T^2}\right)_p dp.$$

The c_p measurements may be conveniently reduced otherwise provided Joule-Thomson data are available.[14, 15] Another method of obtaining c_{p_0} values is through the use of enthalpy data and the expression for enthalpy (14) obtained from the equation of state. Thus,

$$c_{p_0} = \frac{\partial}{\partial t}\left[h - \left(F_0 p + \frac{F_1}{2} p^2 + \frac{F_3}{4} p^4 + \frac{F_{12}}{13} p^{13}\right)\right]_{p \to 0}.$$

All three methods were applied to the available data recently[16] in an attempt to obtain a reliable expression for c_{p_0}. However, in the present development all of these methods were discarded in favor of a new, more fundamental method of determining c_{p_0}.

The development of quantum mechanics and of the science of interpreting band spectra makes possible the calculation of the energy of molecules. From the band spectra investigations on water vapor carried out to date, particularly recent important ones by Mecke,[17] Baumann and Mecke,[18] and Freudenberg and Mecke,[19] we possess sufficient data from which to compute the energy. The temperature derivative of the energy plus a constant gives of course the desired c_{p_0} values. A. R. Gordon[20] has recently made the computations and we believe the results represent the most satisfactory information on c_{p_0} now available. The present tables make use of the Gordon c_{p_0} values which are represented by the following formula:*

$$c_{p_0} = 1.4720 + 7.5566 \cdot 10^{-4}\, T + 47.8365\, \tau \text{ int. joules/g. °C} \qquad (15)$$

Completion of the enthalpy equation for the vapor depends only on the selection of a value for h'. It is customary to make the enthalpy zero for the saturated liquid state at 32° F,† and it would be convenient in determining h' to have a value for the enthalpy of the saturated vapor corresponding to this temperature. The magnitude in this case would equal numerically the heat of evaporation for which unfortunately no new direct measurements exist. Any accurate value of the enthalpy of the vapor will however suffice for determining h', provided of course that it is based on the convention of zero enthalpy for the liquid at 32° in accordance with the steam tables usage. Since the 212° F saturation value has been verified by more experimenters than any other one state it was chosen for the purpose. Osborne's most recently published value[21] of the enthalpy, 2675.35 int. joules/g., was adopted.

* Doctor E. Bright Wilson, Jr. has called to the attention of one of us the fact that the "coupling term" between the rotational and vibrational states of the water molecule may contribute sufficient energy to raise Gordon's values slightly.

† It is realized that the saturated liquid state at 32° F is below the triple point by .02° F, and hence is not a state of true equilibrium. Nevertheless, because extrapolation of properties to that state is easy, no real difficulty arises in using it as a reference condition.

The corresponding enthalpy values for that state obtained from latent heat measurements from three other sources by adding the Osborne enthalpy of the saturated liquid are as follows:

Richards and Matthews[22]	2670.1
Henning[23,24]	2674.82
A. W. Smith[25]	2680.31

The average of these three figures, 2675.08, is in extraordinarily good agreement with the value chosen. Upon substitution in the enthalpy equation it is found that h' is 2502.36 int. joules/g. The enthalpy equation with this value of h' is

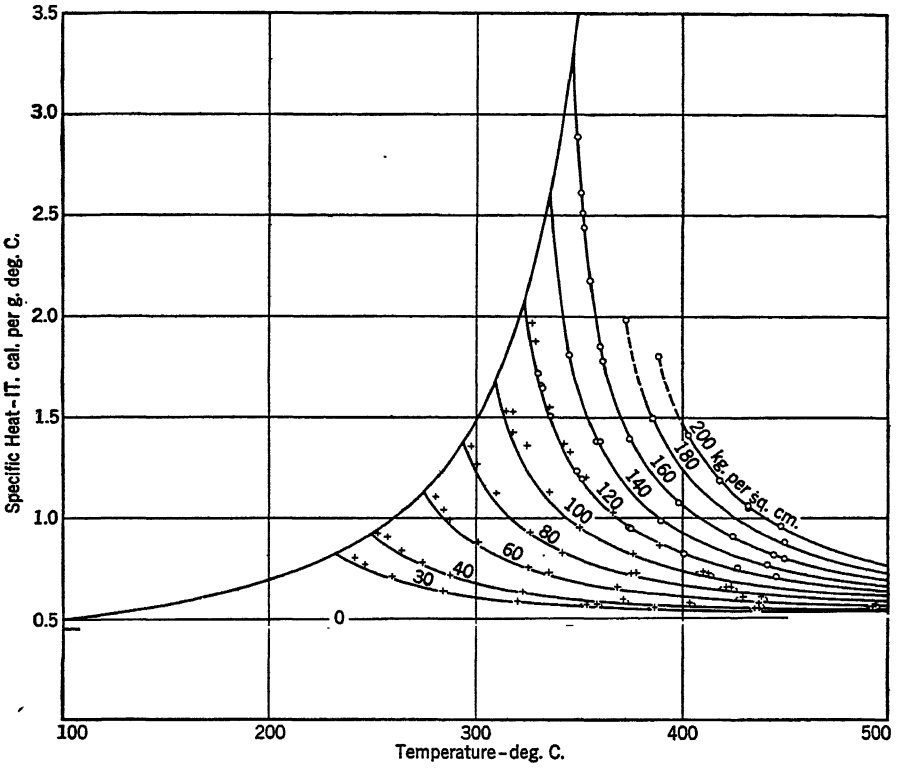


FIGURE 1. Comparison of the heat capacities computed from the equation of state with those measured by Knoblauch and Koch, and by Koch.

Lines represent the equation of state values.
Circles represent Koch measurements, crosses represent Knoblauch and Koch measurements.

the source of all enthalpies tabulated except for states having specific volumes less than 10 cm.^{3}/g.

Since the enthalpy values are derived quantities* it is fortunate that there is available a wealth of experimental material by which they may be tested. The agreement between the enthalpies computed by equation (14) and Osborne's

* It is of interest to note that a recent German steam table (A. Knoblauch, E. Raisch, H. Hausen and W. Koch, Tabellen und Diagramme für Wasserdampf, R. Oldenbourg, Munich and Berlin, 1932) reverses this process and derives volumes from calorimetric data. See also H. Hausen, Forsch. a.d. Geb. d. Ing. 2, 319 (1931).

directly measured enthalpies of the saturated vapor is better than one part in a thousand throughout and is usually better than one part in two thousand.* The excellent latent heat measurements by Henning,[23] Jakob,[26] Jakob and Fritz,[27] and Koch[28] all serve to verify the work of Osborne and, in turn, equation (14).

Havliček and Miškovský[29] have published directly measured values of enthalpy that are admirable in quality and extent. The values from equation (14) differ from these measurements less than 1 cal./g. or about 1 part in 1000, with few exceptions.

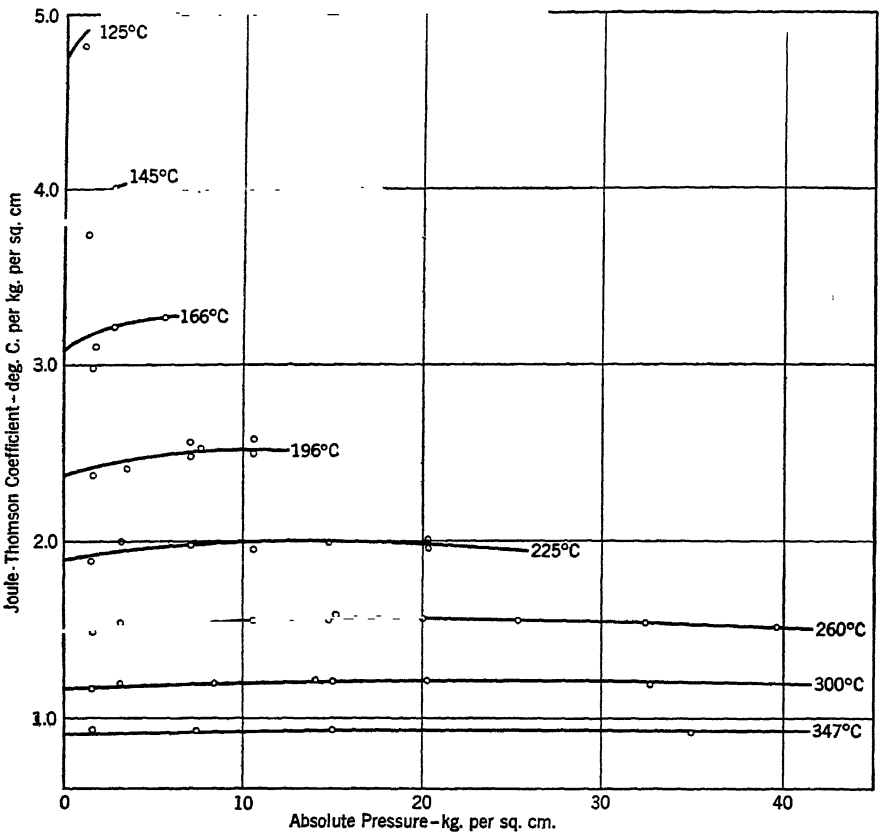


FIGURE 2. Comparison of the Joule-Thomson coefficients computed from the equation of state with those measured by Davis and Kleinschmidt.

Lines represent the equation of state. Circles represent the measurements.

The Koch[30] and Knoblauch and Koch[31] measurements† of specific heat have been compared with the corresponding derivative of equation (14) and the agreement, particularly with the latest measurements, is all that could be desired. The measurements and calculated values are represented in Fig. 1 which makes clear

* Numerical comparisons are given in Proc. Am. Acad. Arts Sci., **70**, 345 (1936).

† References to earlier work on specific heat and critical discussions of the data will be found in the papers of the yearly steam conferences of the A. S. M. E. since 1922. The following papers are of special interest: H. N. Davis, Mech. Eng., **46**, 85 (1924), J. H. Keenan, Mech. Eng., **48**, 144 (1926), H. N. Davis and J. H. Keenan, Mech. Eng., **51**, 291 (1929).

the superior accord of the latest observations with the computed values. Another very sensitive test is provided at moderate temperatures and pressures by the Joule-Thomson coefficients measured at Harvard University by Davis and Kleinschmidt.[32, 33, 34, 35] In Fig. 2 the full lines represent the coefficients obtained by differentiating equation (14) at constant enthalpy and the circles represent the actual measurements. The experimental values lying below the full lines at 125°, 145° and 166° are, according to the investigators, difficult to obtain and are of lower precision than those at higher pressures. The agreement is entirely satisfactory.

The entropy of the vapor can be found from the equation of state through the relationship,

$$\left(\frac{\partial s}{\partial p}\right)_T = -\left(\frac{\partial v}{\partial T}\right)_p.$$

Thus the entropy becomes

$$\begin{aligned} s &= -\int\left(\frac{\partial v}{\partial T}\right)_p dp + M' \\ &= -R\ln p + M_0 p + \frac{M_1}{2}p^2 + \frac{M_3}{4}p^4 + \frac{M_{12}}{13}p^{13} + M', \end{aligned} \tag{16}$$

where M_1, M_3, and M_{12} are each equal to $(\phi - F)\tau$ in terms of the corresponding ϕ and F of equations (13A) and (14), M_0 is $(B_0 - F_0)\tau$, and M' is a pure temperature function. Upon differentiating s with respect to T at constant p it becomes evident that

$$\frac{dM'}{dT} = \frac{c_{p_0}}{T};$$

whence

$$s = -R\ln p + M_0 p + \frac{M_1}{2}p^2 + \frac{M_3}{4}p^4 + \frac{M_{12}}{13}p^{13} + \int\frac{c_{p_0}}{T}dT + s' \tag{16A}$$

in which s' is an arbitrary constant.

As in the case of the enthalpy, it is customary to make the entropy zero for the saturated liquid state at 32° F. Consequently s' must be so chosen that the vapor entropies represent the difference between the entropies of the vapor states and the entropy of the saturated liquid at 32° F. The change in entropy between the reference state and the saturated vapor state at 212° F was calculated from Osborne's enthalpy measurements* by integrating the relationship

$$ds = \frac{dh}{T} - \frac{v}{T}dp$$

along the saturated liquid line from 32° to 212° F and then at constant pressure and temperature from liquid state to vapor state. The resulting entropy of the saturated vapor at 212° F when substituted into the entropy equation (16A) determines s'. Its value is -1.48847 int. joules/g. °C.

An alternative and simpler method of determining s' consists of substituting in the entropy equation h_g/T for s_g at 32° F and the corresponding vapor pressure. The result is an s' which differs by 3 in the last figure given in the tables or about one part in 7000 of the entropy of the vapor at 32° F. Though this difference is

* Specific volumes also enter into this calculation; but since the volume term is small, precise values of the liquid volume are not necessary.

negligible for all uses of the tables, it signifies certain defects in our knowledge of water vapor at low temperatures.

With the determination of s' the entropy expression is complete. It serves like the equation of state and the enthalpy equation for all states in which the specific volume exceeds 10 cm.^{3}/g.

4. The Liquid

The liquid volume data of Amagat[36] and of Smith and Keyes[37] were used by Keenan[38] in the development of a table of properties. Other recent experimental data by Trautz and Steyer[39] are in agreement with the other sources except at high temperatures where the measurements of Trautz and Steyer are probably of less precision.*

The method used by Keenan was a combination of algebraic and graphic devices. The specific volumes were formulated by means of the equation

$$v = 3.086 - 0.899017\, z^{0.147166} - 0.4\, y^{-1.6}\,(p - 218.5) + \delta \qquad (17)$$

where v is specific volume in cm.^{3}/g.,
z is $374.1 - t$,
y is $385 - t$,
t is temperature in °C,
p is pressure in int. atm., and
δ is a function of p and t to be treated graphically.

Except for the immediate neighborhood of the critical point the graphic term was less than 6% of the volume. Since the publication of Keenan's analysis of the liquid phase Koch[40] has used his apparatus for measuring the heat capacity and Havliček[29] has measured enthalpy in that region. The agreement between the specific heats found from Keenan's integrations together with Osborne's saturation data and the heat capacities measured by Koch is extremely gratifying. The agreement with Havliček's work is equally good. All specific volumes in the table of properties of the compressed liquid at temperatures up to 680° F were obtained from equation (17) and faired charts of δ.

The change in enthalpy at constant temperature from saturation was found from the relation,

$$h - h_f = \int_{p_f}^{p} \left(\frac{\partial(v\tau)}{\partial\tau}\right)_p dp = \int_{p_f}^{p} \left(\frac{\partial(f\tau)}{\partial\tau}\right)_p dp + \int_{p_f}^{p} \left(\frac{\partial(\delta\tau)}{\partial\tau}\right)_p dp,$$

where f is the algebraic portion of the formulation or the first three terms in the expression for v (equation 17). The integral involving the graphic term is evaluated graphically.

The change in entropy at constant temperature from saturation was found similarly from the relation

$$s - s_f = -\int_{p_f}^{p} \left(\frac{\partial v}{\partial t}\right)_p dp = -\int_{p_f}^{p} \left(\frac{\partial f}{\partial t}\right)_p dp - \int_{p_f}^{p} \left(\frac{\partial \delta}{\partial t}\right)_p dp.$$

The compressed liquid table is taken from the Keenan development except for small modifications near the critical temperature.

* For a critical discussion of the work of Trautz and Steyer, see M. Jakob, Engineering (London) **132**, 143 (1931).

The specific volume of the saturated liquid up to 680° F was obtained from the formulation by Smith and Keyes[37] which represents the values obtained by extrapolation of their measured values for the compressed liquid and is in excellent accord at low temperatures with the measurements by Amagat.[36] According to this formula the saturated liquid volume is given in cm.^{3}/g. by

$$v_s = \frac{v_c + a(t_c - t)^{\frac{1}{3}} + b(t_c - t) + c(t_c - t)^4}{1 + d(t_c - t)^{\frac{1}{3}} + e(t_c - t)}, \tag{18}$$

where

$$\begin{aligned} v_c &= 3.1975 \frac{\text{cm.}^3}{\text{g.}}, \\ t_c &= \text{critical temperature} = 374.11° \text{ C}, \\ t &= \text{temperature in degrees C}, \\ a &= -0.3151548, \\ b &= -1.203374 \times 10^{-3}, \\ c &= +7.48908 \times 10^{-13}, \\ d &= +0.1342489, \\ e &= -3.946263 \times 10^{-3}. \end{aligned}$$

Though the Smith-Keyes formula was used to 680° F without change in any of its constants, it should be noted that the value of v_c given there is not the critical specific volume chosen for the present table. The selection of saturation values for temperatures above 680° F is discussed in section 5 below.

The enthalpy of the saturated liquid from 32° F to the critical point is taken from the work of Osborne[21] and his colleagues. The values correspond to their most recent publication except near the critical temperature where revised figures privately communicated have been substituted.

The Clapeyron equation offers an alternative method of determining the enthalpy of the saturated liquid through use of the specific volumes previously chosen for saturated liquid and vapor and the vapor pressure relationship. The agreement between the results of the two methods is enough to make it unnecessary to choose between them.*

The entropy of the saturated liquid is found above 212° F by subtracting h_{fg}/T from the entropy of the saturated vapor. A second computation of the entropy change along the saturated liquid line using the relation

$$s = \int_{32}^{t} \frac{dh}{T} - \int_{32}^{t} \frac{v}{T} dp$$

verified the results obtained in the first calculation within one in the last figure in the table. Below 212° F the second method is used in order not to concentrate the low temperature inconsistency discussed in section 3 in these small numbers.

5. Values Near the Critical Point

Properties change so rapidly near the critical point that it is difficult to maintain precision in experiment or analysis. In the present state of our knowledge there remain some uncertainties in the data given for saturation states within a few degrees of the critical point.

* This agreement is evident from comparisons on p. 345 of Proc. Am. Acad. Arts Sci. 70, (1936).

The sources of information drawn upon for data near the critical point were

1. the Keyes vapor pressure equation (1);
2. the Third International Steam Table Conference[41] values for the specific volume of saturated liquid and vapor;
3. saturated liquid enthalpies by Osborne[21] and his colleagues, and the Third International Steam Table Conference[41] values;
4. saturated vapor enthalpies by Osborne,[21] and Third International Steam Table Conference[41] values.

The revised Osborne liquid enthalpies and the Keyes vapor pressures were adhered to. All other values were chosen to give agreement with the most reliable sources, to give consistency through the Clapeyron equation, and to give mean density and mean enthalpy curves with normal characteristics to the critical point.

The region encompassing the critical point, extending from a volume of 10 cm.^{3}/g. on the vapor side to a temperature of 680° F on the liquid side, includes such rapidly changing derivatives that it has resisted formulation. Between volumes of 10 and 5 cm.^{3}/g. it is possible to apply a graphic correction to the equation of state and calculate the properties by combined algebraic and graphic means as in the case of the compressed liquid.

The Keyes, Smith and Gerry[12] volume data occur at such wide intervals over the remaining area that they fail to guide a graphic development in sufficient detail. Havlíček and Miškovský,[29] on the other hand, provide measured values of enthalpy at gratifyingly frequent intervals through this most difficult region. Consequently a semi-graphic formulation was based on enthalpy measurements. The formula used is,

$$h = m - \frac{n}{p} + \frac{1000\,t}{p} + \delta, \tag{19}$$

where h is the enthalpy in IT. cal./g.,
m is 265,
n is 318,000,
t is the temperature in °C,
p is the pressure in kg./cm.^{2} and
δ is a graphically formulated function of p and t.

Because it is found that the Havlíček-Miškovský values fall slightly below both vapor and liquid enthalpies of the present table at more moderate conditions, the formulation is made consistently higher than their measurements by 1 cal./g. The agreement between enthalpies and specific heat values taken from this formulation and Koch's measurements above the critical point is entirely satisfactory.

Values of the constant temperature coefficient corresponding to formulation (19) were computed and integrated between the observed isometrics of the Keyes-Smith measurements, using the following relation,

$$\Delta(v\tau) = \int \left(\frac{\partial h}{\partial p}\right)_t d\tau.$$

Slight adjustments in the graphic formulation of δ brought agreement with the volume measurements to about one part in 1000 throughout the region formulated.

The same type of integration provided volumes for the table while the enthalpy

formulation provided enthalpies. Entropies were computed either by constant pressure integration, using the equation,

$$\Delta s = \int_{p=c} \frac{dh}{T},$$

between a state at a temperature below 680° F and the required state, or by a constant temperature integration, by the following equation,

$$\Delta s = \frac{1}{T}\left[\Delta h - \int v\, dp\right],$$

between a state in the region covered by the equation of state and the required condition. It is evident that these computations offer two tests of the consistency of the work: first, the constant pressure integration may be carried through the formulated region to a temperature so high that the equation of state entropy is valid; second, the entropy of a given state in the formulated region can be computed either from a constant pressure integration starting from a compressed liquid state or from a constant temperature integration starting from an equation of state value of the entropy. In no case did the two methods disagree by more than 2 in the last figure tabulated.

6. The Solid and Its Vapor

In addition to the vapor pressure of ice, values for the specific heat[42] of the solid phase, its coefficient of expansion,[43] and its latent heat of fusion[44] are required. The properties of the vapor in equilibrium with the solid are found by substituting the vapor pressure into the equation of state at various temperatures. The enthalpy of the solid is obtained by integrating specific heats from 32° F, where the enthalpy is the negative of the latent heat of fusion. Specific volumes of the solid follow from the chosen coefficient of expansion with temperature.

7. The Viscosity and Heat Conductivity of Water Vapor

One of the striking successes of the classical kinetic theory of gases was the deduction that the viscosity of a gas is independent of pressure and a function of temperature only. The proposition was early submitted to test at low pressure and its truth established. Later measurements on carbon dioxide at high pressures showed, however, that a pressure effect existed, and as a general proposition the viscosity must be assumed to be a function of both temperature and pressure. The viscosity function, η, may for moderate pressures be assumed to consist of a temperature function and a pressure-temperature function as follows:

$$\eta = \eta_0 + f_1(p) + f_2(p,T) \tag{20}$$

The function η_0 in the case of steam may safely be assumed to conform to the deduction from theory using a van der Waals molecular model.[45] The data[46, 47, 48] for the viscosity of low-pressure steam based on the recent results of Timroth lead to the following equation for η_0:

$$\eta_0 \text{ (g. cm.}^{-2} \text{ sec.)} = \frac{2.3936 \cdot 10^{-5}\,(T)^{\frac{1}{2}}}{1 + 1039.63\,\tau}. \tag{21}$$

Hawkins, Solberg and Potter[49] published measurements on the viscosity of steam

from 160° C to 537° C and to pressures of 240 atm., but Timroth's measurements are considerably lower as regards pressure effect.

To determine $f(p,T)$ the value of η_0 was deducted from the measured viscosity and the differences assumed to be $f_1(p) + f_2(p,T)$. Examination of the Timroth data indicates that the viscosity may be represented by the following form of equation:

$$\eta = \eta_0 + \alpha p + c\,[e^{\beta p^2 T^{-3}} - 1] \tag{22}$$

where p denotes the pressure in kg. cm.$^{-2}$ The numbers in Table 6 were derived using equation (21) in (22), the constants of which for g. cm.$^{-1}$ sec. units are as follows: $\alpha = 1.4 \times 10^{-10}$, $\beta = 2.095 \times 10^{18}$, $c = 1.9 \times 10^{-9}$.

The only available earlier work on the heat conductivity of steam is that of Moser[50] and of Milverton.[51] Recently data have been published by D. L. Timroth and N. B. Vargaftik.[52] A correlation of these results was made using the following form of equation from which the numbers given in Table 7 were computed:

$$\lambda = \lambda_0 + c\,(e^{apT^{-4}} - 1) \tag{23}$$

where $\lambda_0 = 3.191 \times 10^{-6}\,(T)^{\frac{1}{2}} e^{1.5234 \times 10^{-9}\,(T)^3}$, and p denotes the pressure in kg. cm.$^{-2}$ The constants in equation (23) which give λ in cal. cm.$^{-1}$ sec.$^{-1}$ °C^{-1} are as follows:

$$a = 1.773 \times 10^{9} \qquad c = 2.486 \times 10^{-5}$$

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SYMBOLS USED IN TABLES

t — temperature, deg. fahr.

p — absolute pressure, lb. per sq. in. or in. Hg.

v — specific volume, cu. ft. per lb.

h — enthalpy, Btu.* per lb.

s — entropy, Btu.* per deg. fahr. per lb.

u — internal energy, Btu.* per lb.

f (subscript) — refers to a property of the saturated liquid.

g (subscript) — refers to a property of the saturated vapor.

i (subscript) — refers to a property of the saturated solid.

fg (subscript) — refers to a change by evaporation.

ig (subscript) — refers to a change by sublimation.

* 1 Btu. = 778.26 ft. lb., 1 kw. hr. = 3412.75 Btu.
The Btu. is derived from the IT. calorie through the relation 1 IT. cal./g. = 1.8 Btu./lb.
The IT. calorie is defined in the report of the First International Steam Tables Conference (Mechanical Engineering, v. 52 (1930) pp. 120–122) as 1/860 international watt-hour.

Table 1. Saturation: Temperatures

Temp. Fahr.	Abs. Pressure		Specific Volume			Enthalpy			Entropy			Temp. Fahr.
	Lb. / Sq. In.	In. Hg.	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
t	p		v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
32°	0.08854	0.1803	0.01602	3306	3306	0.00	1075.8	1075.8	0.0000	2.1877	2.1877	32°
33	0.09223	0.1878	0.01602	3180	3180	1.01	1075.2	1076.2	0.0020	2.1821	2.1841	33
34	0.09603	0.1955	0.01602	3061	3061	2.02	1074.7	1076.7	0.0041	2.1764	2.1805	34
35°	0.09995	0.2035	0.01602	2947	2947	3.02	1074.1	1077.1	0.0061	2.1709	2.1770	35°
36	0.10401	0.2118	0.01602	2837	2837	4.03	1073.6	1077.6	0.0081	2.1654	2.1735	36
37	0.10821	0.2203	0.01602	2732	2732	5.04	1073.0	1078.0	0.0102	2.1598	2.1700	37
38	0.11256	0.2292	0.01602	2632	2632	6.04	1072.4	1078.4	0.0122	2.1544	2.1666	38
39	0.11705	0.2383	0.01602	2536	2536	7.04	1071.9	1078.9	0.0142	2.1489	2.1631	39
40°	0.12170	0.2478	0.01602	2444	2444	8.05	1071.3	1079.3	0.0162	2.1435	2.1597	40°
41	0.12652	0.2576	0.01602	2356	2356	9.05	1070.7	1079.7	0.0182	2.1381	2.1563	41
42	0.13150	0.2677	0.01602	2271	2271	10.05	1070.1	1080.2	0.0202	2.1327	2.1529	42
43	0.13665	0.2782	0.01602	2190	2190	11.06	1069.5	1080.6	0.0222	2.1274	2.1496	43
44	0.14199	0.2891	0.01602	2112	2112	12.06	1068.9	1081.0	0.0242	2.1220	2.1462	44
45°	0.14752	0.3004	0.01602	2036.4	2036.4	13.06	1068.4	1081.5	0.0262	2.1167	2.1429	45°
46	0.15323	0.3120	0.01602	1964.3	1964.3	14.06	1067.8	1081.9	0.0282	2.1113	2.1395	46
47	0.15914	0.3240	0.01603	1895.1	1895.1	15.07	1067.3	1082.4	0.0302	2.1060	2.1362	47
48	0.16525	0.3364	0.01603	1828.6	1828.6	16.07	1066.7	1082.8	0.0321	2.1008	2.1329	48
49	0.17157	0.3493	0.01603	1764.7	1764.7	17.07	1066.1	1083.2	0.0341	2.0956	2.1297	49
50°	0.17811	0.3626	0.01603	1703.2	1703.2	18.07	1065.6	1083.7	0.0361	2.0903	2.1264	50°
51	0.18486	0.3764	0.01603	1644.2	1644.2	19.07	1065.0	1084.1	0.0380	2.0852	2.1232	51
52	0.19182	0.3906	0.01603	1587.6	1587.6	20.07	1064.4	1084.5	0.0400	2.0799	2.1199	52
53	0.19900	0.4052	0.01603	1533.3	1533.3	21.07	1063.9	1085.0	0.0420	2.0747	2.1167	53
54	0.20642	0.4203	0.01603	1481.0	1481.0	22.07	1063.3	1085.4	0.0439	2.0697	2.1136	54
55°	0.2141	0.4359	0.01603	1430.7	1430.7	23.07	1062.7	1085.8	0.0459	2.0645	2.1104	55°
56	0.2220	0.4520	0.01603	1382.4	1382.4	24.06	1062.2	1086.3	0.0478	2.0594	2.1072	56
57	0.2302	0.4686	0.01603	1335.9	1335.9	25.06	1061.6	1086.7	0.0497	2.0544	2.1041	57
58	0.2386	0.4858	0.01604	1291.1	1291.1	26.06	1061.0	1087.1	0.0517	2.0493	2.1010	58
59	0.2473	0.5035	0.01604	1248.1	1248.1	27.06	1060.5	1087.6	0.0536	2.0443	2.0979	59
60°	0.2563	0.5218	0.01604	1206.6	1206.7	28.06	1059.9	1088.0	0.0555	2.0393	2.0948	60°
61	0.2655	0.5407	0.01604	1166.8	1166.8	29.06	1059.3	1088.4	0.0574	2.0343	2.0917	61
62	0.2751	0.5601	0.01604	1128.4	1128.4	30.05	1058.8	1088.9	0.0593	2.0293	2.0886	62
63	0.2850	0.5802	0.01604	1091.4	1091.4	31.05	1058.2	1089.3	0.0613	2.0243	2.0856	63
64	0.2951	0.6009	0.01605	1055.7	1055.7	32.05	1057.6	1089.7	0.0632	2.0194	2.0826	64
65°	0.3056	0.6222	0.01605	1021.4	1021.4	33.05	1057.1	1090.2	0.0651	2.0145	2.0796	65°
66	0.3164	0.6442	0.01605	988.4	988.4	34.05	1056.5	1090.6	0.0670	2.0096	2.0766	66
67	0.3276	0.6669	0.01605	956.6	956.6	35.05	1056.0	1091.0	0.0689	2.0047	2.0736	67
68	0.3390	0.6903	0.01605	925.9	925.9	36.04	1055.5	1091.5	0.0708	1.9998	2.0706	68
69	0.3509	0.7144	0.01605	896.3	896.3	37.04	1054.9	1091.9	0.0726	1.9950	2.0676	69
70°	0.3631	0.7392	0.01606	867.8	867.9	38.04	1054.3	1092.3	0.0745	1.9902	2.0647	70°
71	0.3756	0.7648	0.01606	840.4	840.4	39.04	1053.8	1092.8	0.0764	1.9854	2.0618	71
72	0.3886	0.7912	0.01606	813.9	813.9	40.04	1053.2	1093.2	0.0783	1.9805	2.0588	72
73	0.4019	0.8183	0.01606	788.3	788.4	41.03	1052.6	1093.6	0.0802	1.9757	2.0559	73
74	0.4156	0.8462	0.01606	763.7	763.8	42.03	1052.1	1094.1	0.0820	1.9710	2.0530	74
75°	0.4298	0.8750	0.01607	740.0	740.0	43.03	1051.5	1094.5	0.0839	1.9663	2.0502	75°
76	0.4443	0.9046	0.01607	717.1	717.1	44.03	1050.9	1094.9	0.0858	1.9615	2.0473	76
77	0.4593	0.9352	0.01607	694.9	694.9	45.02	1050.4	1095.4	0.0876	1.9569	2.0445	77
78	0.4747	0.9666	0.01607	673.6	673.6	46.02	1049.8	1095.8	0.0895	1.9521	2.0416	78
79	0.4906	0.9989	0.01608	653.0	653.0	47.02	1049.2	1096.2	0.0913	1.9475	2.0388	79
80°	0.5069	1.0321	0.01608	633.1	633.1	48.02	1048.6	1096.6	0.0932	1.9428	2.0360	80°
81	0.5237	1.0664	0.01608	613.9	613.9	49.02	1048.1	1097.1	0.0950	1.9382	2.0332	81
82	0.5410	1.1016	0.01608	595.3	595.3	50.01	1047.5	1097.5	0.0969	1.9335	2.0304	82
83	0.5588	1.1378	0.01609	577.4	577.4	51.01	1046.9	1097.9	0.0987	1.9290	2.0277	83
84	0.5771	1.1750	0.01609	560.1	560.2	52.01	1046.4	1098.4	0.1005	1.9244	2.0249	84
85°	0.5959	1.2133	0.01609	543.4	543.5	53.00	1045.8	1098.8	0.1024	1.9198	2.0222	85°
86	0.6152	1.2527	0.01609	527.3	527.3	54.00	1045.2	1099.2	0.1042	1.9153	2.0195	86
87	0.6351	1.2931	0.01610	511.7	511.7	55.00	1044.7	1099.7	0.1060	1.9108	2.0168	87
88	0.6556	1.3347	0.01610	496.6	496.7	56.00	1044.1	1100.1	0.1079	1.9062	2.0141	88
89	0.6766	1.3775	0.01610	482.1	482.1	56.99	1043.5	1100.5	0.1097	1.9017	2.0114	89

Table 1. Saturation: Temperatures

Temp. Fahr.	Abs. Pressure Lb. Sq. In.	Abs. Pressure In. Hg.	Specific Volume Sat. Liquid	Specific Volume Evap.	Specific Volume Sat. Vapor	Enthalpy Sat. Liquid	Enthalpy Evap.	Enthalpy Sat. Vapor	Entropy Sat. Liquid	Entropy Evap.	Entropy Sat. Vapor	Temp. Fahr.
t	p		v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
90°	0.6982	1.4215	0.01610	468.0	468.0	57.99	1042.9	1100.9	0.1115	1.8972	2.0087	90°
91	0.7204	1.4667	0.01611	454.4	454.4	58.99	1042.4	1101.4	0.1133	1.8927	2.0060	91
92	0.7432	1.5131	0.01611	441.2	441.3	59.99	1041.8	1101.8	0.1151	1.8883	2.0034	92
93	0.7666	1.5608	0.01611	428.5	428.5	60.98	1041.2	1102.2	0.1169	1.8838	2.0007	93
94	0.7906	1.6097	0.01612	416.2	416.2	61.98	1040.7	1102.6	0.1187	1.8794	1.9981	94
95°	0.8153	1.6600	0.01612	404.3	404.3	62.98	1040.1	1103.1	0.1205	1.8750	1.9955	95°
96	0.8407	1.7117	0.01612	392.8	392.8	63.98	1039.5	1103.5	0.1223	1.8706	1.9929	96
97	0.8668	1.7647	0.01612	381.7	381.7	64.97	1038.9	1103.9	0.1241	1.8662	1.9903	97
98	0.8935	1.8192	0.01613	370.9	370.9	65.97	1038.4	1104.4	0.1259	1.8618	1.9877	98
99	0.9210	1.8751	0.01613	360.4	360.5	66.97	1037.8	1104.8	0.1277	1.8575	1.9852	99
100°	0.9492	1.9325	0.01613	350.3	350.4	67.97	1037.2	1105.2	0.1295	1.8531	1.9826	100°
101	0.9781	1.9915	0.01614	340.6	340.6	68.96	1036.6	1105.6	0.1313	1.8488	1.9801	101
102	1.0078	2.0519	0.01614	331.1	331.1	69.96	1036.1	1106.1	0.1330	1.8445	1.9775	102
103	1.0382	2.1138	0.01614	321.9	321.9	70.96	1035.5	1106.5	0.1348	1.8402	1.9750	103
104	1.0695	2.1775	0.01615	313.1	313.1	71.96	1034.9	1106.9	0.1366	1.8359	1.9725	104
105°	1.1016	2.2429	0.01615	304.5	304.5	72.95	1034.3	1107.3	0.1383	1.8317	1.9700	105°
106	1.1345	2.3099	0.01615	296.1	296.2	73.95	1033.8	1107.8	0.1401	1.8274	1.9675	106
107	1.1683	2.3786	0.01616	288.1	288.1	74.95	1033.3	1108.2	0.1419	1.8232	1.9651	107
108	1.2029	2.4491	0.01616	280.3	280.3	75.95	1032.7	1108.6	0.1436	1.8190	1.9626	108
109	1.2384	2.5214	0.01616	272.7	272.7	76.94	1032.1	1109.0	0.1454	1.8147	1.9601	109
110°	1.2748	2.5955	0.01617	265.3	265.4	77.94	1031.6	1109.5	0.1471	1.8106	1.9577	110°
111	1.3121	2.6715	0.01617	258.2	258.3	78.94	1031.0	1109.9	0.1489	1.8064	1.9553	111
112	1.3504	2.7494	0.01617	251.3	251.4	79.94	1030.4	1110.3	0.1506	1.8023	1.9529	112
113	1.3896	2.8293	0.01618	244.6	244.7	80.94	1029.8	1110.7	0.1524	1.7981	1.9505	113
114	1.4298	2.9111	0.01618	238.2	238.2	81.93	1029.2	1111.1	0.1541	1.7940	1.9481	114
115°	1.4709	2.9948	0.01618	231.9	231.9	82.93	1028.7	1111.6	0.1559	1.7898	1.9457	115°
116	1.5130	3.0806	0.01619	225.8	225.8	83.93	1028.1	1112.0	0.1576	1.7857	1.9433	116
117	1.5563	3.1687	0.01619	219.9	219.9	84.93	1027.5	1112.4	0.1593	1.7816	1.9409	117
118	1.6006	3.2589	0.01620	214.2	214.2	85.92	1026.9	1112.8	0.1610	1.7776	1.9386	118
119	1.6459	3.3512	0.01620	208.6	208.7	86.92	1026.3	1113.2	0.1628	1.7735	1.9363	119
120°	1.6924	3.4458	0.01620	203.25	203.27	87.92	1025.8	1113.7	0.1645	1.7694	1.9339	120°
121	1.7400	3.5427	0.01621	198.02	198.03	88.92	1025.2	1114.1	0.1662	1.7654	1.9316	121
122	1.7888	3.6420	0.01621	192.93	192.95	89.92	1024.6	1114.5	0.1679	1.7614	1.9293	122
123	1.8387	3.7436	0.01622	188.01	188.02	90.91	1024.0	1114.9	0.1696	1.7574	1.9270	123
124	1.8897	3.8475	0.01622	183.23	183.25	91.91	1023.4	1115.3	0.1714	1.7533	1.9247	124
125°	1.9420	3.9539	0.01622	178.59	178.61	92.91	1022.9	1115.8	0.1731	1.7493	1.9224	125°
126	1.9955	4.0629	0.01623	174.09	174.10	93.91	1022.3	1116.2	0.1748	1.7454	1.9202	126
127	2.0503	4.1745	0.01623	169.71	169.72	94.91	1021.7	1116.6	0.1765	1.7414	1.9179	127
128	2.1064	4.2887	0.01624	165.46	165.47	95.91	1021.1	1117.0	0.1782	1.7374	1.9156	128
129	2.1638	4.4055	0.01624	161.33	161.35	96.90	1020.5	1117.4	0.1799	1.7335	1.9134	129
130°	2.2225	4.5251	0.01625	157.32	157.34	97.90	1020.0	1117.9	0.1816	1.7296	1.9112	130°
131	2.2826	4.6474	0.01625	153.43	153.44	98.90	1019.4	1118.3	0.1833	1.7257	1.9090	131
132	2.3440	4.7725	0.01626	149.65	149.66	99.90	1018.8	1118.7	0.1849	1.7218	1.9067	132
133	2.4069	4.9005	0.01626	145.97	145.99	100.90	1018.2	1119.1	0.1866	1.7179	1.9045	133
134	2.4712	5.0314	0.01626	142.40	142.42	101.90	1017.6	1119.5	0.1883	1.7141	1.9023	134
135°	2.5370	5.1653	0.01627	138.93	138.95	102.90	1017.0	1119.9	0.1900	1.7102	1.9002	135°
136	2.6042	5.3022	0.01627	135.56	135.58	103.90	1016.4	1120.3	0.1917	1.7063	1.8980	136
137	2.6729	5.4421	0.01628	132.29	132.30	104.89	1015.9	1120.8	0.1934	1.7024	1.8958	137
138	2.7432	5.5852	0.01628	129.10	129.12	105.89	1015.3	1121.2	0.1950	1.6987	1.8937	138
139	2.8151	5.7316	0.01629	126.00	126.02	106.89	1014.7	1121.6	0.1967	1.6948	1.8915	139
140°	2.8886	5.8812	0.01629	122.99	123.01	107.89	1014.1	1122.0	0.1984	1.6910	1.8894	140°
141	2.9637	6.0341	0.01630	120.06	120.08	108.89	1013.5	1122.4	0.2000	1.6873	1.8873	141
142	3.0404	6.1903	0.01630	117.22	117.23	109.89	1012.9	1122.8	0.2016	1.6835	1.8851	142
143	3.1188	6.3500	0.01631	114.45	114.46	110.89	1012.3	1123.2	0.2033	1.6797	1.8830	143
144	3.1990	6.5132	0.01631	111.75	111.77	111.89	1011.7	1123.6	0.2049	1.6760	1.8809	144

Table 1. Saturation: Temperatures

Temp. Fahr.	Abs. Pressure		Specific Volume			Enthalpy			Entropy			Temp. Fahr.
	Lb. / Sq. In.	In. Hg.	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
t	p		v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
145°	3.281	6.680	0.01632	109.13	109.15	112.89	1011.2	1124.1	0.2066	1.6722	1.8788	145°
146	3.365	6.850	0.01632	106.58	106.60	113.89	1010.6	1124.5	0.2083	1.6685	1.8768	146
147	3.450	7.024	0.01633	104.10	104.12	114.89	1010.0	1124.9	0.2099	1.6648	1.8747	147
148	3.537	7.202	0.01633	101.69	101.71	115.89	1009.4	1125.3	0.2116	1.6610	1.8726	148
149	3.627	7.384	0.01634	99.34	99.36	116.89	1008.8	1125.7	0.2133	1.6573	1.8706	149
150°	3.718	7.569	0.01634	97.06	97.07	117.89	1008.2	1126.1	0.2149	1.6537	1.8685	150°
151	3.811	7.759	0.01635	94.83	94.85	118.89	1007.6	1126.5	0.2165	1.6500	1.8665	151
152	3.906	7.952	0.01635	92.67	92.68	119.89	1007.0	1126.9	0.2182	1.6463	1.8645	152
153	4.003	8.150	0.01636	90.56	90.57	120.89	1006.4	1127.3	0.2198	1.6427	1.8624	153
154	4.102	8.351	0.01636	88.51	88.52	121.89	1005.8	1127.7	0.2214	1.6390	1.8604	154
155°	4.203	8.557	0.01637	86.51	86.52	122.89	1005.2	1128.1	0.2230	1.6354	1.8584	155°
156	4.306	8.767	0.01637	84.56	84.58	123.89	1004.7	1128.6	0.2246	1.6318	1.8564	156
157	4.411	8.981	0.01638	82.67	82.69	124.89	1004.1	1129.0	0.2263	1.6282	1.8545	157
158	4.519	9.200	0.01638	80.82	80.84	125.89	1003.5	1129.4	0.2279	1.6246	1.8525	158
159	4.629	9.424	0.01639	79.03	79.04	126.89	1002.9	1129.8	0.2295	1.6210	1.8505	159
160°	4.741	9.652	0.01639	77.27	77.29	127.89	1002.3	1130.2	0.2311	1.6174	1.8485	160°
161	4.855	9.885	0.01640	75.57	75.58	128.89	1001.7	1130.6	0.2327	1.6138	1.8466	161
162	4.971	10.122	0.01640	73.91	73.92	129.89	1001.1	1131.0	0.2343	1.6103	1.8446	162
163	5.090	10.364	0.01641	72.29	72.30	130.89	1000.5	1131.4	0.2360	1.6067	1.8427	163
164	5.212	10.611	0.01641	70.71	70.73	131.89	999.9	1131.8	0.2376	1.6032	1.8408	164
165°	5.335	10.863	0.01642	69.17	69.19	132.89	999.3	1132.2	0.2392	1.5997	1.8388	165°
166	5.461	11.120	0.01643	67.67	67.69	133.89	998.7	1132.6	0.2408	1.5961	1.8369	166
167	5.590	11.382	0.01643	66.21	66.23	134.89	998.1	1133.0	0.2424	1.5926	1.8350	167
168	5.721	11.649	0.01644	64.79	64.80	135.90	997.5	1133.4	0.2440	1.5891	1.8331	168
169	5.855	11.921	0.01644	63.40	63.41	136.90	996.9	1133.8	0.2455	1.5857	1.8312	169
170°	5.992	12.199	0.01645	62.04	62.06	137.90	996.3	1134.2	0.2472	1.5822	1.8293	170°
171	6.131	12.483	0.01645	60.72	60.74	138.90	995.7	1134.6	0.2488	1.5787	1.8275	171
172	6.273	12.772	0.01646	59.43	59.45	139.90	995.1	1135.0	0.2503	1.5753	1.8256	172
173	6.417	13.066	0.01647	58.18	58.20	140.90	994.5	1135.4	0.2519	1.5718	1.8237	173
174	6.565	13.366	0.01647	56.96	56.97	141.90	993.9	1135.8	0.2535	1.5684	1.8219	174
175°	6.715	13.671	0.01648	55.76	55.78	142.91	993.3	1136.2	0.2551	1.5649	1.8200	175°
176	6.868	13.983	0.01648	54.60	54.61	143.91	992.7	1136.6	0.2567	1.5615	1.8182	176
177	7.024	14.301	0.01649	53.46	53.48	144.91	992.1	1137.0	0.2583	1.5581	1.8164	177
178	7.183	14.625	0.01650	52.35	52.37	145.91	991.5	1137.4	0.2599	1.5547	1.8146	178
179	7.345	14.955	0.01650	51.27	51.29	146.92	990.8	1137.7	0.2614	1.5513	1.8127	179
180°	7.510	15.291	0.01651	50.21	50.23	147.92	990.2	1138.1	0.2630	1.5480	1.8109	180°
181	7.678	15.633	0.01651	49.18	49.20	148.92	989.6	1138.5	0.2645	1.5446	1.8091	181
182	7.850	15.982	0.01652	48.18	48.19	149.92	989.0	1138.9	0.2661	1.5412	1.8073	182
183	8.024	16.337	0.01653	47.19	47.21	150.93	988.4	1139.3	0.2676	1.5379	1.8055	183
184	8.202	16.699	0.01653	46.24	46.25	151.93	987.8	1139.7	0.2692	1.5346	1.8038	184
185°	8.383	17.068	0.01654	45.29	45.31	152.93	987.2	1140.1	0.2708	1.5312	1.8020	185°
186	8.567	17.443	0.01654	44.39	44.40	153.94	986.6	1140.5	0.2723	1.5279	1.8002	186
187	8.755	17.825	0.01655	43.50	43.51	154.94	986.0	1140.9	0.2739	1.5246	1.7985	187
188	8.946	18.214	0.01656	42.62	42.64	155.94	985.4	1141.3	0.2754	1.5213	1.7967	188
189	9.141	18.611	0.01656	41.77	41.79	156.95	984.8	1141.7	0.2770	1.5180	1.7950	189
190°	9.339	19.014	0.01657	40.94	40.96	157.95	984.1	1142.0	0.2785	1.5147	1.7932	190°
191	9.541	19.425	0.01658	40.13	40.15	158.95	983.4	1142.4	0.2801	1.5114	1.7915	191
192	9.746	19.843	0.01658	39.34	39.36	159.96	982.8	1142.8	0.2816	1.5082	1.7898	192
193	9.955	20.269	0.01659	38.57	38.58	160.96	982.2	1143.2	0.2831	1.5049	1.7880	193
194	10.168	20.703	0.01659	37.81	37.83	161.97	981.6	1143.6	0.2846	1.5017	1.7863	194
195°	10.385	21.144	0.01660	37.07	37.09	162.97	981.0	1144.0	0.2862	1.4984	1.7846	195°
196	10.605	21.593	0.01661	36.35	36.37	163.97	980.4	1144.4	0.2877	1.4952	1.7829	196
197	10.830	22.050	0.01661	35.64	35.66	164.98	979.7	1144.7	0.2892	1.4920	1.7812	197
198	11.058	22.515	0.01662	34.95	34.97	165.98	979.1	1145.1	0.2907	1.4888	1.7795	198
199	11.290	22.987	0.01663	34.28	34.30	166.99	978.5	1145.5	0.2923	1.4856	1.7779	199

Table 1. Saturation: Temperatures

Temp. Fahr.	Abs. Pressure		Specific Volume			Enthalpy			Entropy			Temp. Fahr.
	Lb. / Sq. In.	In. Hg.	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
t	p		v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
200°	11.526	23.467	0.01663	33.62	33.64	167.99	977.9	1145.9	0.2938	1.4824	1.7762	200°
202	12.011	24.455	0.01665	32.35	32.37	170.00	976.6	1146.6	0.2969	1.4760	1.7729	202
204	12.512	25.475	0.01666	31.14	31.15	172.02	975.4	1147.4	0.2999	1.4697	1.7696	204
206	13.031	26.531	0.01667	29.97	29.99	174.03	974.2	1148.2	0.3029	1.4634	1.7663	206
208	13.568	27.625	0.01669	28.86	28.88	176.04	972.9	1148.9	0.3059	1.4571	1.7630	208
210°	14.123	28.755	0.01670	27.80	27.82	178.05	971.6	1149.7	0.3090	1.4508	1.7598	210°
212	14.696	29.922	0.01672	26.78	26.80	180.07	970.3	1150.4	0.3120	1.4446	1.7566	212
214	15.289	31.129	0.01673	25.81	25.83	182.08	969.0	1151.1	0.3149	1.4385	1.7534	214
216	15.901	32.375	0.01674	24.88	24.90	184.10	967.8	1151.9	0.3179	1.4323	1.7502	216
218	16.533	33.662	0.01676	23.99	24.01	186.11	966.5	1152.6	0.3209	1.4262	1.7471	218
220°	17.186	34.992	0.01677	23.13	23.15	188.13	965.2	1153.4	0.3239	1.4201	1.7440	220°
222	17.861	36.365	0.01679	22.31	22.33	190.15	963.9	1154.1	0.3268	1.4141	1.7409	222
224	18.557	37.782	0.01680	21.53	21.55	192.17	962.6	1154.8	0.3298	1.4080	1.7378	224
226	19.275	39.244	0.01682	20.78	20.79	194.18	961.3	1155.5	0.3328	1.4020	1.7348	226
228	20.016	40.753	0.01683	20.06	20.07	196.20	960.1	1156.3	0.3357	1.3961	1.7318	228
230°	20.780	42.308	0.01684	19.365	19.382	198.23	958.8	1157.0	0.3387	1.3901	1.7288	230°
232	21.567	43.911	0.01686	18.703	18.720	200.25	957.4	1157.7	0.3416	1.3842	1.7258	232
234	22.379	45.564	0.01688	18.067	18.084	202.27	956.1	1158.4	0.3444	1.3784	1.7228	234
236	23.217	47.269	0.01689	17.456	17.473	204.29	954.8	1159.1	0.3473	1.3725	1.7199	236
238	24.080	49.027	0.01691	16.869	16.886	206.32	953.5	1159.8	0.3502	1.3667	1.7169	238
240°	24.969	50.837	0.01692	16.306	16.323	208.34	952.2	1160.5	0.3531	1.3609	1.7140	240°
242	25.884	52.701	0.01694	15.765	15.782	210.37	950.8	1161.2	0.3560	1.3551	1.7111	242
244	26.827	54.620	0.01696	15.245	15.262	212.39	949.5	1161.9	0.3589	1.3494	1.7083	244
246	27.798	56.597	0.01697	14.745	14.762	214.42	948.2	1162.6	0.3618	1.3436	1.7054	246
248	28.797	58.631	0.01699	14.265	14.282	216.45	946.8	1163.3	0.3647	1.3379	1.7026	248
250°	29.825	60.725	0.01700	13.804	13.821	218.48	945.5	1164.0	0.3675	1.3323	1.6998	250°
252	30.884	62.880	0.01702	13.360	13.377	220.51	944.2	1164.7	0.3704	1.3266	1.6970	252
254	31.973	65.098	0.01704	12.933	12.950	222.54	942.8	1165.3	0.3732	1.3210	1.6942	254
256	33.093	67.378	0.01705	12.522	12.539	224.58	941.4	1166.0	0.3761	1.3154	1.6915	256
258	34.245	69.723	0.01707	12.127	12.144	226.61	940.1	1166.7	0.3789	1.3099	1.6888	258
260°	35.429	72.134	0.01709	11.746	11.763	228.64	938.7	1167.3	0.3817	1.3043	1.6860	260°
262	36.646	74.612	0.01710	11.379	11.396	230.68	937.3	1168.0	0.3845	1.2988	1.6833	262
264	37.897	77.159	0.01712	11.026	11.043	232.72	936.0	1168.7	0.3874	1.2933	1.6807	264
266	39.182	79.775	0.01714	10.687	10.704	234.76	934.5	1169.3	0.3902	1.2878	1.6780	266
268	40.502	82.463	0.01715	10.359	10.376	236.80	933.2	1170.0	0.3930	1.2824	1.6753	268
270°	41.858	85.225	0.01717	10.044	10.061	238.84	931.8	1170.6	0.3958	1.2769	1.6727	270°
272	43.252	88.062	0.01719	9.739	9.756	240.88	930.3	1171.2	0.3986	1.2715	1.6701	272
274	44.682	90.974	0.01721	9.446	9.463	242.92	929.0	1171.9	0.4014	1.2661	1.6675	274
276	46.150	93.963	0.01722	9.163	9.181	244.96	927.5	1172.5	0.4041	1.2608	1.6649	276
278	47.657	97.031	0.01724	8.891	8.908	247.01	926.1	1173.1	0.4069	1.2554	1.6623	278
280°	49.203	100.18	0.01726	8.628	8.645	249.06	924.7	1173.8	0.4096	1.2501	1.6597	280°
282	50.790	103.41	0.01728	8.374	8.391	251.10	923.3	1174.4	0.4124	1.2448	1.6572	282
284	52.418	106.72	0.01730	8.129	8.146	253.15	921.8	1175.0	0.4152	1.2395	1.6547	284
286	54.088	110.12	0.01732	7.892	7.910	255.20	920.4	1175.6	0.4179	1.2343	1.6522	286
288	55.800	113.61	0.01733	7.664	7.682	257.26	918.9	1176.2	0.4207	1.2290	1.6497	288
290°	57.556	117.19	0.01735	7.444	7.461	259.31	917.5	1176.8	0.4234	1.2238	1.6472	290°
292	59.356	120.85	0.01737	7.231	7.248	261.36	916.0	1177.4	0.4261	1.2186	1.6447	292
294	61.201	124.61	0.01739	7.025	7.043	263.42	914.6	1178.0	0.4288	1.2134	1.6422	294
296	63.091	128.46	0.01741	6.827	6.844	265.48	913.1	1178.6	0.4315	1.2083	1.6398	296
298	65.028	132.40	0.01743	6.635	6.652	267.53	911.6	1179.1	0.4343	1.2031	1.6374	298
300°	67.013	136.44	0.01745	6.449	6.466	269.59	910.1	1179.7	0.4369	1.1980	1.6350	300°
302	69.046	140.58	0.01747	6.269	6.287	271.66	908.6	1180.3	0.4397	1.1929	1.6326	302
304	71.127	144.82	0.01749	6.096	6.114	273.72	907.2	1180.9	0.4424	1.1878	1.6302	304
306	73.259	149.16	0.01751	5.928	5.946	275.78	905.6	1181.4	0.4450	1.1828	1.6278	306
308	75.442	153.60	0.01753	5.766	5.783	277.85	904.1	1182.0	0.4477	1.1777	1.6254	308

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Temp. Fahr.	Abs. Pressure Lb./Sq. In.	Specific Volume Sat. Liquid	Evap.	Sat. Vapor	Enthalpy Sat. Liquid	Evap.	Sat. Vapor	Entropy Sat. Liquid	Evap.	Sat. Vapor	Temp. Fahr.
t	p	v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
310°	77.68	0.01755	5.609	5.626	279.92	902.6	1182.5	0.4504	1.1727	1.6231	310°
312	79.96	0.01757	5.457	5.474	281.99	901.0	1183.1	0.4530	1.1677	1.6207	312
314	82.30	0.01759	5.310	5.327	284.06	899.5	1183.6	0.4557	1.1627	1.6184	314
316	84.70	0.01761	5.167	5.185	286.13	898.0	1184.1	0.4584	1.1577	1.6161	316
318	87.15	0.01763	5.030	5.047	288.20	896.5	1184.7	0.4611	1.1527	1.6138	318
320°	89.66	0.01765	4.896	4.914	290.28	894.9	1185.2	0.4637	1.1478	1.6115	320°
322	92.22	0.01768	4.767	4.785	292.36	893.3	1185.7	0.4664	1.1428	1.6092	322
324	94.84	0.01770	4.642	4.660	294.43	891.8	1186.2	0.4690	1.1379	1.6069	324
326	97.52	0.01772	4.521	4.538	296.52	890.2	1186.7	0.4717	1.1330	1.6047	326
328	100.26	0.01774	4.403	4.421	298.60	888.6	1187.2	0.4743	1.1281	1.6024	328
330°	103.06	0.01776	4.289	4.307	300.68	887.0	1187.7	0.4769	1.1233	1.6002	330°
332	105.92	0.01778	4.179	4.197	302.77	885.4	1188.2	0.4795	1.1184	1.5979	332
334	108.85	0.01781	4.072	4.090	304.86	883.8	1188.7	0.4821	1.1136	1.5957	334
336	111.84	0.01783	3.968	3.986	306.95	882.2	1189.2	0.4847	1.1088	1.5935	336
338	114.89	0.01785	3.868	3.886	309.04	880.6	1189.6	0.4873	1.1040	1.5913	338
340°	118.01	0.01787	3.770	3.788	311.13	879.0	1190.1	0.4900	1.0992	1.5891	340°
342	121.20	0.01790	3.675	3.693	313.23	877.4	1190.6	0.4926	1.0944	1.5870	342
344	124.45	0.01792	3.584	3.602	315.33	875.7	1191.0	0.4952	1.0896	1.5848	344
346	127.77	0.01794	3.495	3.513	317.43	874.1	1191.5	0.4978	1.0848	1.5826	346
348	131.17	0.01797	3.408	3.426	319.53	872.4	1191.9	0.5004	1.0801	1.5805	348
350°	134.63	0.01799	3.324	3.342	321.63	870.7	1192.3	0.5029	1.0754	1.5783	350°
352	138.16	0.01801	3.243	3.261	323.74	869.1	1192.8	0.5055	1.0707	1.5762	352
354	141.77	0.01804	3.164	3.182	325.85	867.3	1193.2	0.5081	1.0660	1.5741	354
356	145.45	0.01806	3.087	3.105	327.96	865.6	1193.6	0.5106	1.0613	1.5719	356
358	149.21	0.01808	3.012	3.030	330.07	863.9	1194.0	0.5132	1.0566	1.5698	358
360°	153.04	0.01811	2.939	2.957	332.18	862.2	1194.4	0.5158	1.0519	1.5677	360°
362	156.95	0.01813	2.869	2.887	334.30	860.5	1194.8	0.5183	1.0473	1.5656	362
364	160.93	0.01816	2.801	2.819	336.42	858.8	1195.2	0.5209	1.0426	1.5635	364
366	165.00	0.01818	2.734	2.752	338.54	857.1	1195.6	0.5235	1.0380	1.5615	366
368	169.15	0.01821	2.669	2.687	340.66	855.3	1196.0	0.5260	1.0334	1.5594	368
370°	173.37	0.01823	2.606	2.625	342.79	853.5	1196.3	0.5286	1.0287	1.5573	370°
372	177.68	0.01826	2.545	2.564	344.91	851.8	1196.7	0.5311	1.0241	1.5553	372
374	182.07	0.01829	2.486	2.504	347.04	850.0	1197.0	0.5336	1.0196	1.5532	374
376	186.55	0.01831	2.428	2.446	349.18	848.2	1197.4	0.5362	1.0150	1.5512	376
378	191.12	0.01834	2.372	2.390	351.31	846.4	1197.7	0.5388	1.0104	1.5492	378
380°	195.77	0.01836	2.317	2.335	353.45	844.6	1198.1	0.5413	1.0059	1.5471	380°
382	200.50	0.01839	2.264	2.282	355.59	842.8	1198.4	0.5438	1.0013	1.5451	382
384	205.33	0.01842	2.212	2.231	357.73	841.0	1198.7	0.5463	0.9968	1.5431	384
386	210.25	0.01844	2.162	2.180	359.88	839.1	1199.0	0.5488	0.9923	1.5411	386
388	215.26	0.01847	2.113	2.131	362.02	837.3	1199.3	0.5514	0.9877	1.5391	388
390°	220.37	0.01850	2.0651	2.0836	364.17	835.4	1199.6	0.5539	0.9832	1.5371	390°
392	225.56	0.01853	2.0187	2.0372	366.33	833.6	1199.9	0.5564	0.9787	1.5351	392
394	230.85	0.01855	1.9734	1.9920	368.48	831.7	1200.2	0.5589	0.9742	1.5331	394
396	236.24	0.01858	1.9293	1.9479	370.64	829.9	1200.5	0.5614	0.9698	1.5311	396
398	241.73	0.01861	1.8864	1.9050	372.80	827.9	1200.7	0.5639	0.9653	1.5292	398
400°	247.31	0.01864	1.8447	1.8633	374.97	826.0	1201.0	0.5664	0.9608	1.5272	400°
405	261.71	0.01871	1.7448	1.7635	380.39	821.2	1201.6	0.5726	0.9497	1.5223	405
410	276.75	0.01878	1.6512	1.6700	385.83	816.3	1202.1	0.5788	0.9386	1.5174	410
415	292.45	0.01886	1.5635	1.5823	391.29	811.3	1202.6	0.5850	0.9276	1.5126	415
420	308.83	0.01894	1.4811	1.5000	396.77	806.3	1203.1	0.5912	0.9166	1.5078	420
425°	325.92	0.01902	1.4036	1.4226	402.27	801.2	1203.5	0.5974	0.9056	1.5030	425°
430	343.72	0.01910	1.3308	1.3499	407.79	796.0	1203.8	0.6035	0.8947	1.4982	430
435	362.27	0.01918	1.2623	1.2815	413.34	790.8	1204.1	0.6097	0.8838	1.4935	435
440	381.59	0.01926	1.1979	1.2171	418.90	785.4	1204.3	0.6158	0.8730	1.4887	440
445	401.68	0.01935	1.1371	1.1565	424.49	780.0	1204.5	0.6219	0.8622	1.4840	445

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t	p	v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	t
450°	422.6	0.0194	1.0799	1.0993	430.1	774.5	1204.6	0.6280	0.8513	1.4793	450°
455	444.3	0.0195	1.0258	1.0453	435.7	768.9	1204.6	0.6341	0.8406	1.4746	455
460	466.9	0.0196	0.9748	0.9944	441.4	763.2	1204.6	0.6402	0.8298	1.4700	460
465	490.3	0.0197	0.9266	0.9463	447.1	757.4	1204.5	0.6463	0.8190	1.4653	465
470	514.7	0.0198	0.8811	0.9009	452.8	751.5	1204.3	0.6523	0.8083	1.4606	470
475°	539.9	0.0199	0.8380	0.8579	458.6	745.4	1204.0	0.6584	0.7976	1.4560	475°
480	566.1	0.0200	0.7972	0.8172	464.4	739.4	1203.7	0.6645	0.7868	1.4513	480
485	593.3	0.0201	0.7586	0.7787	470.2	733.1	1203.3	0.6705	0.7761	1.4466	485
490	621.4	0.0202	0.7221	0.7423	476.0	726.8	1202.8	0.6766	0.7653	1.4419	490
495	650.6	0.0203	0.6874	0.7077	481.9	720.4	1202.3	0.6826	0.7546	1.4372	495
500°	680.8	0.0204	0.6545	0.6749	487.8	713.9	1201.7	0.6887	0.7438	1.4325	500°
505	712.0	0.0205	0.6233	0.6438	493.8	707.1	1200.9	0.6948	0.7331	1.4278	505
510	744.3	0.0207	0.5935	0.6142	499.8	700.3	1200.1	0.7008	0.7223	1.4231	510
515	777.8	0.0208	0.5653	0.5861	505.8	693.4	1199.2	0.7069	0.7115	1.4184	515
520	812.4	0.0209	0.5385	0.5594	511.9	686.4	1198.2	0.7130	0.7006	1.4136	520
525°	848.1	0.0210	0.5130	0.5340	518.0	679.1	1197.1	0.7191	0.6897	1.4088	525°
530	885.0	0.0212	0.4886	0.5098	524.1	671.8	1195.9	0.7252	0.6788	1.4040	530
535	923.2	0.0213	0.4655	0.4868	530.3	664.3	1194.6	0.7313	0.6679	1.3991	535
540	962.5	0.0215	0.4434	0.4649	536.6	656.6	1193.2	0.7374	0.6568	1.3942	540
545	1003.2	0.0216	0.4224	0.4440	542.9	648.8	1191.7	0.7435	0.6458	1.3893	545
550°	1045.2	0.0218	0.4022	0.4240	549.3	640.8	1190.0	0.7497	0.6346	1.3843	550°
555	1088.5	0.0219	0.3831	0.4050	555.7	632.6	1188.3	0.7559	0.6234	1.3793	555
560	1133.1	0.0221	0.3647	0.3868	562.2	624.2	1186.4	0.7621	0.6121	1.3742	560
565	1179.1	0.0222	0.3472	0.3694	568.8	615.5	1184.3	0.7683	0.6007	1.3690	565
570	1226.5	0.0224	0.3304	0.3528	575.4	606.7	1182.1	0.7746	0.5893	1.3638	570
575°	1275.4	0.0226	0.3143	0.3369	582.1	597.7	1179.8	0.7809	0.5777	1.3585	575°
580	1325.8	0.0228	0.2989	0.3217	588.9	588.4	1177.3	0.7872	0.5659	1.3532	580
585	1377.7	0.0230	0.2841	0.3071	595.8	578.8	1174.6	0.7936	0.5541	1.3477	585
590	1431.2	0.0232	0.2700	0.2931	602.8	569.0	1171.8	0.8001	0.5421	1.3422	590
595	1486.2	0.0234	0.2563	0.2797	609.8	558.9	1168.7	0.8066	0.5299	1.3365	595
600°	1542.9	0.0236	0.2432	0.2668	617.0	548.5	1165.5	0.8131	0.5176	1.3307	600°
605	1601.2	0.0239	0.2306	0.2545	624.3	537.7	1162.0	0.8197	0.5051	1.3248	605
610	1661.2	0.0241	0.2185	0.2426	631.6	526.7	1158.4	0.8264	0.4924	1.3188	610
615	1723.0	0.0244	0.2068	0.2312	639.1	515.3	1154.4	0.8331	0.4795	1.3126	615
620	1786.6	0.0247	0.1955	0.2201	646.7	503.6	1150.3	0.8398	0.4664	1.3062	620
625°	1852.0	0.0250	0.1845	0.2095	654.4	491.4	1145.8	0.8467	0.4530	1.2997	625°
630	1919.3	0.0253	0.1740	0.1992	662.3	478.8	1141.1	0.8536	0.4394	1.2930	630
635	1988.5	0.0256	0.1637	0.1893	670.4	465.6	1136.0	0.8607	0.4254	1.2861	635
640	2059.7	0.0260	0.1538	0.1798	678.6	452.0	1130.5	0.8679	0.4110	1.2789	640
645	2132.9	0.0264	0.1441	0.1705	687.0	437.7	1124.7	0.8752	0.3962	1.2715	645
650°	2208.2	0.0268	0.1348	0.1616	695.7	422.8	1118.5	0.8828	0.3809	1.2637	650°
655	2285.7	0.0273	0.1256	0.1528	704.8	406.9	1111.7	0.8906	0.3651	1.2557	655
660	2365.4	0.0278	0.1165	0.1442	714.2	390.2	1104.4	0.8987	0.3485	1.2472	660
665	2447.4	0.0283	0.1076	0.1359	724.1	372.4	1096.4	0.9071	0.3311	1.2382	665
670	2531.8	0.0290	0.0987	0.1277	734.4	353.2	1087.7	0.9159	0.3127	1.2285	670
675°	2618.7	0.0297	0.0899	0.1196	745.4	332.6	1078.0	0.9251	0.2931	1.2183	675°
680	2708.1	0.0305	0.0810	0.1115	757.3	309.9	1067.2	0.9351	0.2719	1.2071	680
685	2800.2	0.0315	0.0719	0.1034	770.1	284.7	1054.8	0.9459	0.2487	1.1946	685
690	2895.1	0.0328	0.0625	0.0953	784.4	256.0	1040.4	0.9578	0.2227	1.1805	690
695	2992.9	0.0344	0.0520	0.0864	801.2	220.7	1021.9	0.9719	0.1911	1.1630	695
700°	3093.7	0.0369	0.0392	0.0761	823.3	172.1	995.4	0.9905	0.1484	1.1389	700°
702	3134.9	0.0385	0.0325	0.0710	835.4	145.2	980.6	1.0006	0.1249	1.1256	702
704	3176.7	0.0410	0.0234	0.0645	852.7	106.0	958.7	1.0152	0.0911	1.1063	704
705	3197.7	0.0438	0.0152	0.0589	869.2	69.1	938.4	1.0293	0.0593	1.0886	705
705.4	3206.2	0.0503	0	0.0503	902.7	0	902.7	1.0580	0	1.0580	705.4

Table 2. Saturation: Pressures

Abs. Press. In. Hg.	Temp. Fahr.	Specific Volume Sat. Liquid	Specific Volume Sat. Vapor	Enthalpy Sat. Liquid	Enthalpy Evap.	Enthalpy Sat. Vapor	Entropy Sat. Liquid	Entropy Evap.	Entropy Sat. Vapor	Internal Energy Sat. Liquid	Internal Energy Evap.	Internal Energy Sat. Vapor	Abs. Press. In. Hg.
p	t	v_f	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_{fg}	u_g	p
0.25	40.23	0.01602	2423.7	8.28	1071.1	1079.4	0.0166	2.1423	2.1589	8.28	1016.0	1024.3	*0.25*
0.50	58.80	0.01604	1256.4	26.86	1060.6	1087.5	0.0532	2.0453	2.0985	26.86	1003.5	1030.4	*0.50*
0.75	70.43	0.01606	856.1	38.47	1054.0	1092.5	0.0754	1.9881	2.0635	38.47	995.7	1034.2	*0.75*
1.00	79.03	0.01608	652.3	47.05	1049.2	1096.3	0.0914	1.9473	2.0387	47.05	990.0	1037.0	*1.00*
1.5	91.72	0.01611	444.9	59.71	1042.0	1101.7	0.1147	1.8894	2.0041	59.71	981.4	1041.1	*1.5*
2.0	101.14	0.01614	339.2	69.10	1036.6	1105.7	0.1316	1.8481	1.9797	69.10	974.9	1044.0	*2.0*
2.5	108.71	0.01616	274.9	76.65	1032.3	1108.9	0.1449	1.8160	1.9609	76.65	969.8	1046.4	*2.5*
3.0	115.06	0.01618	231.6	82.99	1028.6	1111.6	0.1560	1.7896	1.9456	82.99	965.5	1048.5	*3.0*
4.0	125.43	0.01622	176.7	93.34	1022.7	1116.0	0.1738	1.7476	1.9214	93.33	958.5	1051.8	*4.0*
5	133.76	0.01626	143.25	101.66	1017.7	1119.4	0.1879	1.7150	1.9028	101.65	952.6	1054.3	*5*
6	140.78	0.01630	120.72	108.67	1013.6	1122.3	0.1996	1.6881	1.8877	108.66	947.8	1056.5	*6*
7	146.86	0.01633	104.46	114.75	1010.0	1124.8	0.2097	1.6653	1.8750	114.74	943.7	1058.4	*7*
8	152.24	0.01635	92.16	120.13	1006.9	1127.0	0.2186	1.6454	1.8640	120.12	939.9	1060.0	*8*
9	157.09	0.01638	82.52	124.97	1004.0	1129.0	0.2264	1.6279	1.8543	124.96	936.5	1061.5	*9*
10	161.49	0.01640	74.76	129.38	1001.4	1130.8	0.2335	1.6121	1.8456	129.37	933.4	1062.8	*10*
11	165.54	0.01642	68.38	133.43	999.0	1132.4	0.2400	1.5978	1.8378	133.41	930.6	1064.0	*11*
12	169.28	0.01644	63.03	137.18	996.7	1133.9	0.2460	1.5847	1.8307	137.16	928.0	1065.2	*12*
13	172.78	0.01646	58.47	140.68	994.6	1135.3	0.2516	1.5725	1.8241	140.66	925.5	1066.2	*13*
14	176.05	0.01648	54.55	143.96	992.6	1136.6	0.2568	1.5613	1.8181	143.94	923.3	1067.2	*14*
15	179.14	0.01650	51.14	147.06	990.7	1137.8	0.2616	1.5508	1.8125	147.04	921.1	1068.1	*15*
16	182.05	0.01652	48.14	149.98	988.9	1138.9	0.2662	1.5410	1.8072	149.96	918.9	1068.9	*16*
17	184.82	0.01654	45.48	152.75	987.3	1140.0	0.2705	1.5318	1.8023	152.72	917.0	1069.7	*17*
18	187.45	0.01655	43.11	155.39	985.7	1141.1	0.2746	1.5231	1.7977	155.36	915.1	1070.5	*18*
19	189.96	0.01657	40.99	157.91	984.2	1142.1	0.2784	1.5148	1.7933	157.88	913.4	1071.3	*19*
20	192.37	0.01658	39.07	160.33	982.7	1143.0	0.2822	1.5069	1.7891	160.30	911.7	1072.0	*20*
21	194.68	0.01660	37.32	162.65	981.2	1143.9	0.2857	1.4994	1.7851	162.62	910.1	1072.7	*21*
22	196.90	0.01661	35.73	164.87	979.8	1144.7	0.2891	1.4923	1.7814	164.84	908.5	1073.3	*22*
23	199.03	0.01663	34.28	167.02	978.5	1145.5	0.2923	1.4855	1.7779	166.99	906.9	1073.9	*23*
24	201.09	0.01664	32.94	169.09	977.2	1146.3	0.2955	1.4789	1.7744	169.05	905.4	1074.5	*24*
25	203.08	0.01666	31.70	171.09	975.9	1147.0	0.2985	1.4726	1.7711	171.05	904.0	1075.0	*25*
26	205.00	0.01667	30.56	173.02	974.8	1147.8	0.3014	1.4665	1.7679	172.98	902.6	1075.6	*26*
27	206.87	0.01668	29.50	174.90	973.6	1148.5	0.3042	1.4607	1.7649	174.86	901.2	1076.1	*27*
28	208.67	0.01669	28.52	176.72	972.5	1149.2	0.3069	1.4550	1.7619	176.68	899.9	1076.6	*28*
29	210.43	0.01671	27.60	178.48	971.4	1149.9	0.3096	1.4495	1.7591	178.44	898.7	1077.1	*29*
30	212.13	0.01672	26.74	180.19	970.3	1150.5	0.3122	1.4442	1.7564	180.14	897.5	1077.6	*30*
Lb. / Sq. In.													**Lb. / Sq. In.**
0.20	53.14	0.01603	1526.0	21.21	1063.8	1085.0	0.0422	2.0741	2.1163	21.21	1007.3	1028.5	**0.20**
0.25	59.30	0.01604	1235.3	27.36	1060.3	1087.7	0.0542	2.0428	2.0970	27.36	1003.2	1030.6	**0.25**
0.30	64.47	0.01605	1039.5	32.52	1057.4	1090.0	0.0641	2.0171	2.0812	32.52	999.8	1032.3	**0.30**
0.35	68.93	0.01605	898.5	36.97	1054.9	1091.9	0.0725	1.9953	2.0678	36.97	996.7	1033.7	**0.35**
0.40	72.86	0.01606	791.9	40.89	1052.7	1093.6	0.0799	1.9764	2.0563	40.89	994.1	1035.0	**0.40**
0.45	76.38	0.01607	708.5	44.41	1050.7	1095.1	0.0865	1.9597	2.0462	44.41	991.7	1036.1	**0.45**
0.50	79.58	0.01608	641.4	47.60	1048.8	1096.4	0.0924	1.9448	2.0372	47.60	989.5	1037.1	**0.50**
0.60	85.21	0.01609	540.0	53.21	1045.7	1098.9	0.1028	1.9188	2.0216	53.21	985.7	1038.9	**0.60**
0.70	90.08	0.01610	466.9	58.07	1042.9	1101.0	0.1117	1.8968	2.0085	58.07	982.4	1040.5	**0.70**
0.80	94.38	0.01612	411.7	62.36	1040.4	1102.8	0.1194	1.8777	1.9971	62.36	979.5	1041.9	**0.80**
0.90	98.24	0.01613	368.4	66.21	1038.3	1104.5	0.1263	1.8608	1.9871	66.21	976.9	1043.1	**0.90**
1.0	101.74	0.01614	333.6	69.70	1036.3	1106.0	0.1326	1.8456	1.9782	69.70	974.6	1044.3	**1.0**
1.2	107.92	0.01616	280.9	75.87	1032.7	1108.6	0.1435	1.8193	1.9628	75.87	970.3	1046.2	**1.2**
1.4	113.26	0.01618	243.0	81.20	1029.6	1110.8	0.1528	1.7971	1.9498	81.20	966.7	1047.9	**1.4**
1.6	117.99	0.01620	214.3	85.91	1026.9	1112.8	0.1610	1.7776	1.9386	85.91	963.5	1049.4	**1.6**
1.8	122.23	0.01621	191.8	90.14	1024.5	1114.6	0.1683	1.7605	1.9288	90.13	960.6	1050.7	**1.8**
2.0	126.08	0.01623	173.73	93.99	1022.2	1116.2	0.1749	1.7451	1.9200	93.98	957.9	1051.9	**2.0**
2.2	129.62	0.01624	158.85	97.52	1020.2	1117.7	0.1809	1.7311	1.9120	97.51	955.5	1053.0	**2.2**
2.4	132.89	0.01626	146.38	100.79	1018.3	1119.1	0.1864	1.7183	1.9047	100.78	953.3	1054.1	**2.4**
2.6	135.94	0.01627	135.78	103.83	1016.5	1120.3	0.1916	1.7065	1.8981	103.82	951.2	1055.0	**2.6**
2.8	138.79	0.01629	126.65	106.68	1014.8	1121.5	0.1963	1.6957	1.8920	106.67	949.2	1055.9	**2.8**

Table 2. Saturation: Pressures

Abs. Press. Lb./Sq. In.	Temp. Fahr.	Specific Volume		Enthalpy			Entropy			Internal Energy			Abs. Press. Lb./Sq. In.
		Sat. Liquid	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
p	t	v_f	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_{fg}	u_g	p
3.0	141.48	0.01630	118.71	109.37	1013.2	1122.6	0.2008	1.6855	1.8863	109.36	947.3	1056.7	3.0
3.5	147.57	0.01633	102.72	115.46	1009.6	1125.1	0.2109	1.6626	1.8735	115.45	943.1	1058.6	3.5
4.0	152.97	0.01636	90.63	120.86	1006.4	1127.3	0.2198	1.6427	1.8625	120.85	939.3	1060.2	4.0
4.5	157.83	0.01638	81.16	125.71	1003.6	1129.3	0.2276	1.6252	1.8528	125.70	936.0	1061.7	4.5
5.0	162.24	0.01640	73.52	130.13	1001.0	1131.1	0.2347	1.6094	1.8441	130.12	933.0	1063.1	5.0
5.5	166.30	0.01643	67.24	134.19	998.5	1132.7	0.2411	1.5951	1.8363	134.17	930.1	1064.3	5.5
6.0	170.06	0.01645	61.98	137.96	996.2	1134.2	0.2472	1.5820	1.8292	137.94	927.5	1065.4	6.0
6.5	173.56	0.01647	57.50	141.47	994.1	1135.6	0.2528	1.5699	1.8227	141.45	925.0	1066.4	6.5
7.0	176.85	0.01649	53.64	144.76	992.1	1136.9	0.2581	1.5586	1.8167	144.74	922.7	1067.4	7.0
7.5	179.94	0.01651	50.29	147.86	990.2	1138.1	0.2629	1.5481	1.8110	147.84	920.5	1068.3	7.5
8.0	182.86	0.01653	47.34	150.79	988.5	1139.3	0.2674	1.5383	1.8057	150.77	918.4	1069.2	8.0
8.5	185.64	0.01654	44.73	153.57	986.8	1140.4	0.2718	1.5290	1.8008	153.54	916.5	1070.0	8.5
9.0	188.28	0.01656	42.40	156.22	985.2	1141.4	0.2759	1.5203	1.7962	156.19	914.6	1070.8	9.0
9.5	190.80	0.01658	40.31	158.75	983.6	1142.3	0.2798	1.5120	1.7918	158.72	912.8	1071.5	9.5
10	193.21	0.01659	38.42	161.17	982.1	1143.3	0.2835	1.5041	1.7876	161.14	911.1	1072.2	10
11	197.75	0.01662	35.14	165.73	979.3	1145.0	0.2903	1.4897	1.7800	165.70	907.8	1073.5	11
12	201.96	0.01665	32.40	169.96	976.6	1146.6	0.2967	1.4763	1.7730	169.92	904.8	1074.7	12
13	205.88	0.01667	30.06	173.91	974.2	1148.1	0.3027	1.4638	1.7665	173.87	901.9	1075.8	13
14	209.56	0.01670	28.04	177.61	971.9	1149.5	0.3083	1.4522	1.7605	177.57	899.3	1076.9	14
14.696	212.00	0.01672	26.80	180.07	970.3	1150.4	0.3120	1.4446	1.7566	180.02	897.5	1077.5	14.696
15	213.03	0.01672	26.29	181.11	969.7	1150.8	0.3135	1.4415	1.7549	181.06	896.7	1077.8	15
16	216.32	0.01674	24.75	184.42	967.6	1152.0	0.3184	1.4313	1.7497	184.37	894.3	1078.7	16
17	219.44	0.01677	23.39	187.56	965.5	1153.1	0.3231	1.4218	1.7449	187.51	892.0	1079.5	17
18	222.41	0.01679	22.17	190.56	963.6	1154.2	0.3275	1.4128	1.7403	190.50	889.9	1080.4	18
19	225.24	0.01681	21.08	193.42	961.9	1155.3	0.3317	1.4043	1.7360	193.36	887.8	1081.2	19
20	227.96	0.01683	20.089	196.16	960.1	1156.3	0.3356	1.3962	1.7319	196.10	885.8	1081.9	20
21	230.57	0.01685	19.192	198.79	958.4	1157.2	0.3395	1.3885	1.7280	198.73	883.9	1082.6	21
22	233.07	0.01687	18.375	201.33	956.8	1158.1	0.3431	1.3811	1.7242	201.26	882.0	1083.3	22
23	235.49	0.01689	17.627	203.78	955.2	1159.0	0.3466	1.3740	1.7206	203.71	880.2	1083.9	23
24	237.82	0.01691	16.938	206.14	953.7	1159.8	0.3500	1.3672	1.7172	206.07	878.5	1084.6	24
25	240.07	0.01692	16.303	208.42	952.1	1160.6	0.3533	1.3606	1.7139	208.34	876.8	1085.1	25
26	242.25	0.01694	15.715	210.62	950.7	1161.3	0.3564	1.3544	1.7108	210.54	875.2	1085.7	26
27	244.36	0.01696	15.170	212.75	949.3	1162.0	0.3594	1.3484	1.7078	212.67	873.6	1086.3	27
28	246.41	0.01698	14.663	214.83	947.9	1162.7	0.3623	1.3425	1.7048	214.74	872.1	1086.8	28
29	248.40	0.01699	14.189	216.86	946.5	1163.4	0.3652	1.3368	1.7020	216.77	870.5	1087.3	29
30	250.33	0.01701	13.746	218.82	945.3	1164.1	0.3680	1.3313	1.6993	218.73	869.1	1087.8	30
31	252.22	0.01702	13.330	220.73	944.0	1164.7	0.3707	1.3260	1.6967	220.63	867.7	1088.3	31
32	254.05	0.01704	12.940	222.59	942.8	1165.4	0.3733	1.3209	1.6941	222.49	866.3	1088.7	32
33	255.84	0.01705	12.572	224.41	941.6	1166.0	0.3758	1.3159	1.6917	224.31	864.9	1089.2	33
34	257.58	0.01707	12.226	226.18	940.3	1166.5	0.3783	1.3110	1.6893	226.07	863.5	1089.6	34
35	259.28	0.01708	11.898	227.91	939.2	1167.1	0.3807	1.3063	1.6870	227.80	862.3	1090.1	35
36	260.95	0.01709	11.588	229.60	938.0	1167.6	0.3831	1.3017	1.6848	229.49	861.0	1090.5	36
37	262.57	0.01711	11.294	231.26	936.9	1168.2	0.3854	1.2972	1.6826	231.14	859.8	1090.9	37
38	264.16	0.01712	11.015	232.89	935.8	1168.7	0.3876	1.2929	1.6805	232.77	858.5	1091.3	38
39	265.72	0.01714	10.750	234.48	934.7	1169.2	0.3898	1.2886	1.6784	234.36	857.2	1091.6	39
40	267.25	0.01715	10.498	236.03	933.7	1169.7	0.3919	1.2844	1.6763	235.90	856.1	1092.0	40
41	268.74	0.01716	10.258	237.55	932.6	1170.2	0.3940	1.2803	1.6743	237.42	855.0	1092.4	41
42	270.21	0.01717	10.029	239.04	931.6	1170.7	0.3960	1.2764	1.6724	238.91	853.8	1092.7	42
43	271.64	0.01719	9.810	240.51	930.6	1171.1	0.3980	1.2726	1.6706	240.37	852.7	1093.1	43
44	273.05	0.01720	9.601	241.95	929.6	1171.6	0.4000	1.2687	1.6687	241.81	851.6	1093.4	44
45	274.44	0.01721	9.401	243.36	928.6	1172.0	0.4019	1.2650	1.6669	243.22	850.5	1093.7	45
46	275.80	0.01722	9.209	244.75	927.7	1172.4	0.4038	1.2613	1.6652	244.60	849.5	1094.1	46
47	277.13	0.01723	9.025	246.12	926.7	1172.9	0.4057	1.2577	1.6634	245.97	848.4	1094.4	47
48	278.45	0.01725	8.848	247.47	925.8	1173.3	0.4075	1.2542	1.6617	247.32	847.4	1094.7	48
49	279.74	0.01726	8.678	248.79	924.9	1173.7	0.4093	1.2508	1.6601	248.63	846.4	1095.0	49

Table 2. Saturation: Pressures

Abs. Press. Lb./Sq. In.	Temp.	Specific Volume		Enthalpy			Entropy			Internal Energy			Abs. Press. Lb./Sq. In.
		Sat. Liquid	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
p	t	v_f	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_{fg}	u_g	p
50	281.01	0.01727	8.515	250.09	924.0	1174.1	0.4110	1.2474	1.6585	249.93	845.4	1095.3	50
51	282.26	0.01728	8.359	251.37	923.0	1174.4	0.4127	1.2442	1.6569	251.21	844.3	1095.5	51
52	283.49	0.01729	8.208	252.63	922.2	1174.8	0.4144	1.2409	1.6553	252.46	843.3	1095.8	52
53	284.70	0.01730	8.062	253.87	921.3	1175.2	0.4161	1.2377	1.6538	253.70	842.4	1096.1	53
54	285.90	0.01731	7.922	255.09	920.5	1175.6	0.4177	1.2346	1.6523	254.92	841.5	1096.4	54
55	287.07	0.01732	7.787	256.30	919.6	1175.9	0.4193	1.2316	1.6509	256.12	840.6	1096.7	55
56	288.23	0.01733	7.656	257.50	918.8	1176.3	0.4209	1.2285	1.6494	257.32	839.7	1097.0	56
57	289.37	0.01734	7.529	258.67	917.9	1176.6	0.4225	1.2255	1.6480	258.49	838.7	1097.2	57
58	290.50	0.01736	7.407	259.82	917.1	1176.9	0.4240	1.2226	1.6466	259.63	837.8	1097.4	58
59	291.61	0.01737	7.289	260.96	916.3	1177.3	0.4255	1.2197	1.6452	260.77	836.9	1097.7	59
60	292.71	0.01738	7.175	262.09	915.5	1177.6	0.4270	1.2168	1.6438	261.90	836.0	1097.9	60
61	293.79	0.01739	7.064	263.20	914.7	1177.9	0.4285	1.2140	1.6425	263.00	835.2	1098.2	61
62	294.85	0.01740	6.957	264.30	913.9	1178.2	0.4300	1.2112	1.6412	264.10	834.3	1098.4	62
63	295.90	0.01741	6.853	265.38	913.1	1178.5	0.4314	1.2085	1.6399	265.18	833.4	1098.6	63
64	296.94	0.01742	6.752	266.45	912.3	1178.8	0.4328	1.2059	1.6387	266.24	832.6	1098.8	64
65	297.97	0.01743	6.655	267.50	911.6	1179.1	0.4342	1.2032	1.6374	267.29	831.8	1099.1	65
66	298.99	0.01744	6.560	268.55	910.8	1179.4	0.4356	1.2006	1.6362	268.34	831.0	1099.3	66
67	299.99	0.01745	6.468	269.58	910.1	1179.7	0.4369	1.1981	1.6350	269.36	830.2	1099.5	67
68	300.98	0.01746	6.378	270.60	909.4	1180.0	0.4383	1.1955	1.6338	270.38	829.4	1099.8	68
69	301.96	0.01747	6.291	271.61	908.7	1180.3	0.4396	1.1930	1.6326	271.39	828.6	1100.0	69
70	302.92	0.01748	6.206	272.61	907.9	1180.6	0.4409	1.1906	1.6315	272.38	827.8	1100.2	70
71	303.88	0.01749	6.124	273.60	907.2	1180.8	0.4422	1.1881	1.6303	273.37	827.0	1100.4	71
72	304.83	0.01750	6.044	274.57	906.5	1181.1	0.4435	1.1857	1.6292	274.34	826.3	1100.6	72
73	305.76	0.01751	5.966	275.54	905.8	1181.3	0.4447	1.1834	1.6281	275.30	825.5	1100.8	73
74	306.68	0.01752	5.890	276.49	905.1	1181.6	0.4460	1.1810	1.6270	276.25	824.7	1101.0	74
75	307.60	0.01753	5.816	277.43	904.5	1181.9	0.4472	1.1787	1.6259	277.19	824.0	1101.2	75
76	308.50	0.01754	5.743	278.37	903.7	1182.1	0.4484	1.1764	1.6248	278.12	823.3	1101.4	76
77	309.40	0.01754	5.673	279.30	903.1	1182.4	0.4496	1.1742	1.6238	279.05	822.5	1101.6	77
78	310.29	0.01755	5.604	280.21	902.4	1182.6	0.4508	1.1720	1.6228	279.96	821.7	1101.7	78
79	311.16	0.01756	5.537	281.12	901.7	1182.8	0.4520	1.1698	1.6217	280.86	821.0	1101.9	79
80	312.03	0.01757	5.472	282.02	901.1	1183.1	0.4531	1.1676	1.6207	281.76	820.3	1102.1	80
81	312.89	0.01758	5.408	282.91	900.4	1183.3	0.4543	1.1654	1.6197	282.65	819.6	1102.2	81
82	313.74	0.01759	5.346	283.79	899.7	1183.5	0.4554	1.1633	1.6187	283.52	818.9	1102.4	82
83	314.59	0.01760	5.285	284.66	899.1	1183.8	0.4565	1.1612	1.6177	284.39	818.2	1102.6	83
84	315.42	0.01761	5.226	285.53	898.5	1184.0	0.4576	1.1592	1.6168	285.26	817.5	1102.8	84
85	316.25	0.01761	5.168	286.39	897.8	1184.2	0.4587	1.1571	1.6158	286.11	816.8	1102.9	85
86	317.07	0.01762	5.111	287.24	897.2	1184.4	0.4598	1.1551	1.6149	286.96	816.1	1103.1	86
87	317.88	0.01763	5.055	288.08	896.5	1184.6	0.4609	1.1530	1.6139	287.80	815.4	1103.2	87
88	318.68	0.01764	5.001	288.91	895.9	1184.8	0.4620	1.1510	1.6130	288.63	814.8	1103.4	88
89	319.48	0.01765	4.948	289.74	895.3	1185.1	0.4630	1.1491	1.6121	289.45	814.1	1103.6	89
90	320.27	0.01766	4.896	290.56	894.7	1185.3	0.4641	1.1471	1.6112	290.27	813.4	1103.7	90
91	321.06	0.01767	4.845	291.38	894.1	1185.5	0.4651	1.1452	1.6103	291.08	812.8	1103.9	91
92	321.83	0.01768	4.796	292.18	893.5	1185.7	0.4661	1.1433	1.6094	291.88	812.2	1104.1	92
93	322.60	0.01768	4.747	292.98	892.9	1185.9	0.4672	1.1413	1.6085	292.68	811.5	1104.2	93
94	323.36	0.01769	4.699	293.78	892.3	1186.1	0.4682	1.1394	1.6076	293.47	810.9	1104.4	94
95	324.12	0.01770	4.652	294.56	891.7	1186.2	0.4692	1.1376	1.6068	294.25	810.2	1104.5	95
96	324.87	0.01771	4.606	295.34	891.1	1186.4	0.4702	1.1358	1.6060	295.03	809.6	1104.6	96
97	325.61	0.01772	4.561	296.12	890.5	1186.6	0.4711	1.1340	1.6051	295.80	808.9	1104.7	97
98	326.35	0.01772	4.517	296.89	889.9	1186.8	0.4721	1.1322	1.6043	296.57	808.3	1104.9	98
99	327.08	0.01773	4.474	297.65	889.4	1187.0	0.4731	1.1304	1.6035	297.33	807.7	1105.0	99
100	327.81	0.01774	4.432	298.40	888.8	1187.2	0.4740	1.1286	1.6026	298.08	807.1	1105.2	100
101	328.53	0.01775	4.391	299.15	888.2	1187.4	0.4750	1.1268	1.6018	298.82	806.5	1105.3	101
102	329.25	0.01775	4.350	299.90	887.6	1187.5	0.4759	1.1251	1.6010	299.57	805.9	1105.4	102
103	329.96	0.01776	4.310	300.64	887.1	1187.7	0.4768	1.1234	1.6002	300.30	805.3	1105.6	103
104	330.66	0.01777	4.271	301.37	886.5	1187.9	0.4778	1.1216	1.5994	301.03	804.7	1105.7	104

Table 2. Saturation: Pressures

Abs. Press. Lb./Sq. In.	Temp. Fahr.	Specific Volume Sat. Liquid	Specific Volume Sat. Vapor	Enthalpy Sat. Liquid	Enthalpy Evap.	Enthalpy Sat. Vapor	Entropy Sat. Liquid	Entropy Evap.	Entropy Sat. Vapor	Internal Energy Sat. Liquid	Internal Energy Evap.	Internal Energy Sat. Vapor	Abs. Press. Lb./Sq. In.
p	t	v_f	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_{fg}	u_g	p
105	331.36	0.01778	4.232	302.10	886.0	1188.1	0.4787	1.1199	1.5986	301.75	804.1	1105.9	105
106	332.05	0.01778	4.194	302.82	885.4	1188.2	0.4796	1.1182	1.5978	302.47	803.5	1106.0	106
107	332.74	0.01779	4.157	303.54	884.9	1188.4	0.4805	1.1166	1.5971	303.19	802.9	1106.1	107
108	333.42	0.01780	4.120	304.26	884.3	1188.6	0.4814	1.1149	1.5963	303.90	802.4	1106.3	108
109	334.10	0.01781	4.084	304.97	883.7	1188.7	0.4823	1.1133	1.5956	304.61	801.8	1106.4	109
110	334.77	0.01782	4.049	305.66	883.2	1188.9	0.4832	1.1117	1.5948	305.30	801.2	1106.5	110
111	335.44	0.01782	4.015	306.37	882.6	1189.0	0.4840	1.1101	1.5941	306.00	800.6	1106.6	111
112	336.11	0.01783	3.981	307.06	882.1	1189.2	0.4849	1.1085	1.5934	306.69	800.0	1106.7	112
113	336.77	0.01784	3.947	307.75	881.6	1189.4	0.4858	1.1069	1.5927	307.38	799.4	1106.8	113
114	337.42	0.01784	3.914	308.43	881.1	1189.5	0.4866	1.1053	1.5919	308.05	798.9	1106.9	114
115	338.07	0.01785	3.882	309.11	880.6	1189.7	0.4875	1.1037	1.5912	308.73	798.4	1107.1	115
116	338.72	0.01786	3.850	309.79	880.0	1189.8	0.4883	1.1022	1.5905	309.41	797.8	1107.2	116
117	339.36	0.01787	3.819	310.46	879.5	1190.0	0.4891	1.1007	1.5898	310.07	797.2	1107.3	117
118	339.99	0.01787	3.788	311.12	879.0	1190.1	0.4900	1.0992	1.5891	310.73	796.7	1107.4	118
119	340.62	0.01788	3.758	311.78	878.4	1190.2	0.4908	1.0977	1.5885	311.39	796.1	1107.5	119
120	341.25	0.01789	3.728	312.44	877.9	1190.4	0.4916	1.0962	1.5878	312.05	795.6	1107.6	120
121	341.88	0.01790	3.699	313.10	877.4	1190.5	0.4924	1.0947	1.5871	312.70	795.0	1107.7	121
122	342.50	0.01791	3.670	313.75	876.9	1190.7	0.4932	1.0933	1.5865	313.35	794.5	1107.8	122
123	343.11	0.01791	3.642	314.40	876.4	1190.8	0.4940	1.0918	1.5858	313.99	793.9	1107.9	123
124	343.72	0.01792	3.614	315.04	875.9	1190.9	0.4948	1.0903	1.5851	314.63	793.4	1108.0	124
125	344.33	0.01792	3.587	315.68	875.4	1191.1	0.4956	1.0888	1.5844	315.26	792.8	1108.1	125
126	344.94	0.01793	3.560	316.31	874.9	1191.2	0.4964	1.0874	1.5838	315.89	792.3	1108.2	126
127	345.54	0.01794	3.533	316.94	874.4	1191.3	0.4972	1.0859	1.5831	316.52	791.8	1108.3	127
128	346.13	0.01794	3.507	317.57	873.9	1191.5	0.4980	1.0845	1.5825	317.15	791.3	1108.4	128
129	346.73	0.01795	3.481	318.19	873.4	1191.6	0.4987	1.0832	1.5819	317.77	790.7	1108.5	129
130	347.32	0.01796	3.455	318.81	872.9	1191.7	0.4995	1.0817	1.5812	318.38	790.2	1108.6	130
131	347.90	0.01797	3.430	319.43	872.5	1191.9	0.5002	1.0804	1.5806	318.99	789.7	1108.7	131
132	348.48	0.01797	3.405	320.04	872.0	1192.0	0.5010	1.0790	1.5800	319.60	789.2	1108.8	132
133	349.06	0.01798	3.381	320.65	871.5	1192.1	0.5018	1.0776	1.5793	320.21	788.7	1108.9	133
134	349.64	0.01799	3.357	321.25	871.0	1192.2	0.5025	1.0762	1.5787	320.80	788.2	1109.0	134
135	350.21	0.01800	3.333	321.85	870.6	1192.4	0.5032	1.0749	1.5781	321.40	787.7	1109.1	135
136	350.78	0.01800	3.310	322.45	870.1	1192.5	0.5040	1.0735	1.5775	322.00	787.2	1109.2	136
137	351.35	0.01801	3.287	323.05	869.6	1192.6	0.5047	1.0722	1.5769	322.59	786.7	1109.3	137
138	351.91	0.01801	3.264	323.64	869.1	1192.7	0.5054	1.0709	1.5763	323.18	786.2	1109.4	138
139	352.47	0.01802	3.242	324.23	868.7	1192.9	0.5061	1.0696	1.5757	323.77	785.7	1109.5	139
140	353.02	0.01802	3.220	324.82	868.2	1193.0	0.5069	1.0682	1.5751	324.35	785.2	1109.6	140
141	353.57	0.01803	3.198	325.40	867.7	1193.1	0.5076	1.0669	1.5745	324.93	784.8	1109.7	141
142	354.12	0.01804	3.177	325.98	867.2	1193.2	0.5083	1.0657	1.5740	325.51	784.3	1109.8	142
143	354.67	0.01804	3.155	326.56	866.7	1193.3	0.5090	1.0644	1.5734	326.08	783.8	1109.8	143
144	355.21	0.01805	3.134	327.13	866.3	1193.4	0.5097	1.0631	1.5728	326.65	783.3	1109.9	144
145	355.76	0.01806	3.114	327.70	865.8	1193.5	0.5104	1.0618	1.5722	327.22	782.8	1110.0	145
146	356.29	0.01806	3.094	328.27	865.3	1193.6	0.5111	1.0605	1.5716	327.78	782.3	1110.1	146
147	356.83	0.01807	3.074	328.83	864.9	1193.8	0.5118	1.0592	1.5710	328.34	781.9	1110.2	147
148	357.36	0.01808	3.054	329.39	864.5	1193.9	0.5124	1.0580	1.5705	328.90	781.4	1110.3	148
149	357.89	0.01808	3.034	329.95	864.0	1194.0	0.5131	1.0568	1.5699	329.45	780.9	1110.4	149
150	358.42	0.01809	3.015	330.51	863.6	1194.1	0.5138	1.0556	1.5694	330.01	780.5	1110.5	150
152	359.46	0.01810	2.977	331.61	862.7	1194.3	0.5151	1.0532	1.5683	331.10	779.5	1110.6	152
154	360.49	0.01812	2.940	332.70	861.8	1194.5	0.5165	1.0507	1.5672	332.18	778.5	1110.7	154
156	361.52	0.01813	2.904	333.79	860.9	1194.7	0.5178	1.0483	1.5661	333.26	777.6	1110.9	156
158	362.53	0.01814	2.869	334.86	860.0	1194.9	0.5191	1.0459	1.5650	334.23	776.8	1111.0	158
160	363.53	0.01815	2.834	335.93	859.2	1195.1	0.5204	1.0436	1.5640	335.39	775.8	1111.2	160
162	364.53	0.01817	2.801	336.98	858.3	1195.3	0.5216	1.0414	1.5630	336.44	775.0	1111.4	162
164	365.51	0.01818	2.768	338.02	857.5	1195.5	0.5229	1.0391	1.5620	337.47	774.1	1111.5	164
166	366.48	0.01819	2.736	339.05	856.6	1195.7	0.5241	1.0369	1.5610	338.49	773.2	1111.7	166
168	367.45	0.01820	2.705	340.07	855.7	1195.8	0.5254	1.0346	1.5600	339.51	772.3	1111.8	168

Table 2. Saturation: Pressures

Abs. Press. Lb./Sq. In.	Temp.	Specific Volume		Enthalpy			Entropy			Internal Energy			Abs. Press. Lb./Sq. In.
		Sat. Liquid	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	
p	t	v_f	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_{fg}	u_g	p
170	368.41	0.01822	2.675	341.09	854.9	1196.0	0.5266	1.0324	1.5590	340.52	771.4	1111.9	170
172	369.35	0.01823	2.645	342.10	854.1	1196.2	0.5278	1.0302	1.5580	341.52	770.5	1112.0	172
174	370.29	0.01824	2.616	343.10	853.3	1196.4	0.5290	1.0280	1.5570	342.51	769.7	1112.2	174
176	371.22	0.01825	2.587	344.09	852.4	1196.5	0.5302	1.0259	1.5561	343.50	768.8	1112.3	176
178	372.14	0.01826	2.559	345.06	851.6	1196.7	0.5313	1.0238	1.5551	344.46	767.9	1112.4	178
180	373.06	0.01827	2.532	346.03	850.8	1196.9	0.5325	1.0217	1.5542	345.42	767.1	1112.5	180
182	373.96	0.01829	2.505	347.00	850.0	1197.0	0.5336	1.0196	1.5532	346.38	766.2	1112.6	182
184	374.86	0.01830	2.479	347.96	849.2	1197.2	0.5348	1.0175	1.5523	347.34	765.4	1112.8	184
186	375.75	0.01831	2.454	348.92	848.4	1197.3	0.5359	1.0155	1.5514	348.29	764.6	1112.9	186
188	376.64	0.01832	2.429	349.86	847.6	1197.5	0.5370	1.0136	1.5506	349.22	763.8	1113.0	188
190	377.51	0.01833	2.404	350.79	846.8	1197.6	0.5381	1.0116	1.5497	350.15	763.0	1113.1	190
192	378.38	0.01834	2.380	351.72	846.1	1197.8	0.5392	1.0096	1.5488	351.07	762.1	1113.2	192
194	379.24	0.01835	2.356	352.64	845.3	1197.9	0.5403	1.0076	1.5479	351.98	761.3	1113.3	194
196	380.10	0.01836	2.333	353.55	844.5	1198.1	0.5414	1.0056	1.5470	352.89	760.6	1113.5	196
198	380.95	0.01838	2.310	354.46	843.7	1198.2	0.5425	1.0037	1.5462	353.79	759.8	1113.6	198
200	381.79	0.01839	2.288	355.36	843.0	1198.4	0.5435	1.0018	1.5453	354.68	759.0	1113.7	200
205	383.86	0.01842	2.234	357.58	841.1	1198.7	0.5461	0.9971	1.5432	356.88	757.1	1114.0	205
210	385.90	0.01844	2.183	359.77	839.2	1199.0	0.5487	0.9925	1.5412	359.05	755.2	1114.2	210
215	387.89	0.01847	2.134	361.91	837.4	1199.3	0.5512	0.9880	1.5392	361.18	753.2	1114.4	215
220	389.86	0.01850	2.087	364.02	835.6	1199.6	0.5537	0.9835	1.5372	363.27	751.3	1114.6	220
225	391.79	0.01852	2.0422	366.09	833.8	1199.9	0.5561	0.9792	1.5353	365.32	749.5	1114.8	225
230	393.68	0.01854	1.9992	368.13	832.0	1200.1	0.5585	0.9750	1.5334	367.34	747.7	1115.0	230
235	395.54	0.01857	1.9579	370.14	830.3	1200.4	0.5608	0.9708	1.5316	369.33	745.9	1115.3	235
240	397.37	0.01860	1.9183	372.12	828.5	1200.6	0.5631	0.9667	1.5298	371.29	744.1	1115.4	240
245	399.18	0.01863	1.8803	374.08	826.8	1200.9	0.5653	0.9627	1.5280	373.23	742.4	1115.6	245
250	400.95	0.01865	1.8438	376.00	825.1	1201.1	0.5675	0.9588	1.5263	375.14	740.7	1115.8	250
255	402.70	0.01868	1.8086	377.89	823.4	1201.3	0.5697	0.9549	1.5246	377.01	739.0	1116.0	255
260	404.42	0.01870	1.7748	379.76	821.8	1201.5	0.5719	0.9510	1.5229	378.86	737.3	1116.1	260
265	406.11	0.01873	1.7422	381.60	820.1	1201.7	0.5740	0.9472	1.5212	380.68	735.6	1116.3	265
270	407.78	0.01875	1.7107	383.42	818.5	1201.9	0.5760	0.9436	1.5196	382.48	733.9	1116.4	270
275	409.43	0.01878	1.6804	385.21	816.9	1202.1	0.5781	0.9399	1.5180	384.26	732.3	1116.6	275
280	411.05	0.01880	1.6511	386.98	815.3	1202.3	0.5801	0.9363	1.5164	386.01	730.7	1116.7	280
285	412.65	0.01883	1.6228	388.73	813.7	1202.4	0.5821	0.9327	1.5149	387.74	729.1	1116.8	285
290	414.23	0.01885	1.5954	390.46	812.1	1202.6	0.5841	0.9292	1.5133	389.45	727.5	1116.9	290
295	415.79	0.01887	1.5689	392.16	810.5	1202.7	0.5860	0.9258	1.5118	391.13	725.9	1117.0	295
300	417.33	0.01890	1.5433	393.84	809.0	1202.8	0.5879	0.9225	1.5104	392.79	724.3	1117.1	300
310	420.35	0.01894	1.4944	397.15	806.0	1203.1	0.5916	0.9159	1.5075	396.06	721.3	1117.4	310
320	423.29	0.01899	1.4485	400.39	803.0	1203.4	0.5952	0.9094	1.5046	399.26	718.3	1117.6	320
330	426.16	0.01904	1.4053	403.56	800.0	1203.6	0.5988	0.9031	1.5019	402.40	715.4	1117.8	330
340	428.97	0.01908	1.3645	406.66	797.1	1203.7	0.6022	0.8970	1.4992	405.46	712.4	1117.9	340
350	431.72	0.01913	1.3260	409.69	794.2	1203.9	0.6056	0.8910	1.4966	408.45	709.6	1118.0	350
360	434.40	0.01917	1.2895	412.67	791.4	1204.1	0.6090	0.8851	1.4941	411.39	706.8	1118.2	360
370	437.03	0.01921	1.2550	415.59	788.6	1204.2	0.6122	0.8794	1.4916	414.27	704.0	1118.3	370
380	439.60	0.01925	1.2222	418.45	785.8	1204.3	0.6153	0.8738	1.4891	417.10	701.3	1118.4	380
390	442.12	0.01930	1.1910	421.27	783.1	1204.4	0.6184	0.8683	1.4867	419.88	698.6	1118.5	390
400	444.59	0.0193	1.1613	424.0	780.5	1204.5	0.6214	0.8630	1.4844	422.6	695.9	1118.5	400
410	447.01	0.0194	1.1330	426.8	777.7	1204.5	0.6243	0.8578	1.4821	425.3	693.3	1118.6	410
420	449.39	0.0194	1.1061	429.4	775.2	1204.6	0.6272	0.8527	1.4799	427.9	690.8	1118.7	420
430	451.73	0.0194	1.0803	432.1	772.5	1204.6	0.6301	0.8476	1.4777	430.5	688.2	1118.7	430
440	454.02	0.0195	1.0556	434.6	770.0	1204.6	0.6329	0.8426	1.4755	433.0	685.7	1118.7	440
450	456.28	0.0195	1.0320	437.2	767.4	1204.6	0.6356	0.8378	1.4734	435.5	683.2	1118.7	450
460	458.50	0.0196	1.0094	439.7	764.9	1204.6	0.6383	0.8330	1.4713	438.0	680.7	1118.7	460
470	460.68	0.0196	0.9878	442.2	762.4	1204.6	0.6410	0.8283	1.4693	440.5	678.2	1118.7	470
480	462.82	0.0197	0.9670	444.6	759.9	1204.5	0.6436	0.8237	1.4673	442.9	675.7	1118.6	480
490	464.93	0.0197	0.9470	447.0	757.5	1204.5	0.6462	0.8191	1.4653	445.2	673.4	1118.6	490

Table 2. Saturation: Pressures

Abs. Press. Lb. / Sq. In.	Temp.	Specific Volume			Enthalpy			Entropy			Internal Energy		Abs. Press. Lb. / Sq. In.
		Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Evap.	Sat. Vapor	Sat. Liquid	Sat. Vapor	
p	t	v_f	v_{fg}	v_g	h_f	h_{fg}	h_g	s_f	s_{fg}	s_g	u_f	u_g	p
500	467.01	0.0197	0.9081	0.9278	449.4	755.0	1204.4	0.6487	0.8147	1.4634	447.6	1118.6	500
520	471.07	0.0198	0.8717	0.8915	454.1	750.1	1204.2	0.6536	0.8060	1.4596	452.2	1118.4	520
540	475.01	0.0199	0.8379	0.8578	458.6	745.4	1204.0	0.6584	0.7976	1.4560	456.6	1118.3	540
560	478.85	0.0200	0.8065	0.8265	463.0	740.8	1203.8	0.6631	0.7893	1.4524	460.9	1118.2	560
580	482.58	0.0201	0.7772	0.7973	467.4	736.1	1203.5	0.6676	0.7813	1.4489	465.2	1118.0	580
600	486.21	0.0201	0.7497	0.7698	471.6	731.6	1203.2	0.6720	0.7734	1.4454	469.4	1117.7	600
620	489.75	0.0202	0.7238	0.7440	475.7	727.2	1202.9	0.6763	0.7658	1.4421	473.4	1117.5	620
640	493.21	0.0203	0.6995	0.7198	479.8	722.7	1202.5	0.6805	0.7584	1.4389	477.4	1117.3	640
660	496.58	0.0204	0.6767	0.6971	483.8	718.3	1202.1	0.6846	0.7512	1.4358	481.3	1117.0	660
680	499.88	0.0204	0.6553	0.6757	487.7	714.0	1201.7	0.6886	0.7441	1.4327	485.1	1116.7	680
700	503.10	0.0205	0.6349	0.6554	491.5	709.7	1201.2	0.6925	0.7371	1.4296	488.8	1116.3	700
720	506.25	0.0206	0.6156	0.6362	495.3	705.4	1200.7	0.6963	0.7303	1.4266	492.5	1116.0	720
740	509.34	0.0207	0.5973	0.6180	499.0	701.2	1200.2	0.7001	0.7237	1.4237	496.2	1115.6	740
760	512.36	0.0207	0.5800	0.6007	502.6	697.1	1199.7	0.7037	0.7172	1.4209	499.7	1115.2	760
780	515.33	0.0208	0.5635	0.5843	506.2	692.9	1199.1	0.7073	0.7108	1.4181	503.2	1114.8	780
800	518.23	0.0209	0.5478	0.5687	509.7	688.9	1198.6	0.7108	0.7045	1.4153	506.6	1114.4	800
820	521.08	0.0209	0.5329	0.5538	513.2	684.8	1198.0	0.7143	0.6983	1.4126	510.0	1114.0	820
840	523.88	0.0210	0.5186	0.5396	516.6	680.8	1197.4	0.7177	0.6922	1.4099	513.3	1113.6	840
860	526.63	0.0211	0.5049	0.5260	520.0	676.8	1196.8	0.7210	0.6862	1.4072	516.6	1113.1	860
880	529.33	0.0212	0.4918	0.5130	523.3	672.8	1196.1	0.7243	0.6803	1.4046	519.9	1112.6	880
900	531.98	0.0212	0.4794	0.5006	526.6	668.8	1195.4	0.7275	0.6744	1.4020	523.1	1112.1	900
920	534.59	0.0213	0.4673	0.4886	529.8	664.9	1194.7	0.7307	0.6687	1.3995	526.2	1111.5	920
940	537.16	0.0214	0.4558	0.4772	533.0	661.0	1194.0	0.7339	0.6631	1.3970	529.3	1111.0	940
960	539.68	0.0214	0.4449	0.4663	536.2	657.1	1193.3	0.7370	0.6576	1.3945	532.4	1110.5	960
980	542.17	0.0215	0.4342	0.4557	539.3	653.3	1192.6	0.7400	0.6521	1.3921	535.4	1110.0	980
1000	544.61	0.0216	0.4240	0.4456	542.4	649.4	1191.8	0.7430	0.6467	1.3897	538.4	1109.4	1000
1050	550.57	0.0218	0.4000	0.4218	550.0	639.9	1189.9	0.7504	0.6334	1.3838	545.8	1108.0	1050
1100	556.31	0.0220	0.3781	0.4001	557.4	630.4	1187.8	0.7575	0.6205	1.3780	552.9	1106.4	1100
1150	561.86	0.0221	0.3581	0.3802	564.6	621.0	1185.6	0.7644	0.6079	1.3723	559.9	1104.7	1150
1200	567.22	0.0223	0.3396	0.3619	571.7	611.7	1183.4	0.7711	0.5956	1.3667	566.7	1103.0	1200
1250	572.42	0.0225	0.3225	0.3450	578.6	602.4	1181.0	0.7776	0.5836	1.3612	573.4	1101.2	1250
1300	577.46	0.0227	0.3066	0.3293	585.4	593.2	1178.6	0.7840	0.5719	1.3559	580.0	1099.4	1300
1350	582.35	0.0229	0.2919	0.3148	592.1	584.0	1176.1	0.7902	0.5604	1.3506	586.4	1097.5	1350
1400	587.10	0.0231	0.2781	0.3012	598.7	574.7	1173.4	0.7963	0.5491	1.3454	592.7	1095.4	1400
1450	591.73	0.0233	0.2651	0.2884	605.2	565.5	1170.7	0.8023	0.5379	1.3402	599.0	1093.3	1450
1500	596.23	0.0235	0.2530	0.2765	611.6	556.3	1167.9	0.8082	0.5269	1.3351	605.1	1091.2	1500
1600	604.90	0.0239	0.2309	0.2548	624.1	538.0	1162.1	0.8196	0.5053	1.3249	617.0	1086.7	1600
1700	613.15	0.0243	0.2111	0.2354	636.3	519.6	1155.9	0.8306	0.4843	1.3149	628.7	1081.8	1700
1800	621.03	0.0247	0.1932	0.2179	648.3	501.1	1149.4	0.8412	0.4637	1.3049	640.1	1076.8	1800
1900	628.58	0.0252	0.1769	0.2021	660.1	482.4	1142.4	0.8516	0.4433	1.2949	651.2	1071.4	1900
2000	635.82	0.0257	0.1621	0.1878	671.7	463.4	1135.1	0.8619	0.4230	1.2849	662.2	1065.6	2000
2100	642.77	0.0262	0.1484	0.1746	683.3	444.1	1127.4	0.8721	0.4027	1.2748	673.1	1059.6	2100
2200	649.46	0.0268	0.1358	0.1625	694.8	424.4	1119.2	0.8820	0.3826	1.2646	683.9	1053.1	2200
2300	655.91	0.0274	0.1239	0.1513	706.5	403.9	1110.4	0.8921	0.3621	1.2541	694.8	1046.0	2300
2400	662.12	0.0280	0.1128	0.1407	718.4	382.7	1101.1	0.9023	0.3411	1.2434	706.0	1038.6	2400
2500	668.13	0.0287	0.1021	0.1307	730.6	360.5	1091.1	0.9126	0.3197	1.2322	717.3	1030.6	2500
2600	673.94	0.0295	0.0918	0.1213	743.0	337.2	1080.2	0.9232	0.2973	1.2205	728.8	1021.9	2600
2700	679.55	0.0305	0.0818	0.1123	756.2	312.1	1068.3	0.9342	0.2740	1.2082	741.0	1012.3	2700
2800	684.99	0.0315	0.0719	0.1035	770.1	284.7	1054.8	0.9459	0.2487	1.1946	753.8	1001.2	2800
2900	690.26	0.0329	0.0618	0.0947	785.4	253.6	1039.0	0.9587	0.2205	1.1792	767.7	988.2	2900
3000	695.36	0.0346	0.0512	0.0858	802.5	217.8	1020.3	0.9731	0.1885	1.1615	783.4	972.7	3000
3100	700.31	0.0371	0.0382	0.0753	825.0	168.1	993.1	0.9919	0.1449	1.1368	803.7	949.9	3100
3200	705.11	0.0444	0.0136	0.0580	872.4	62.0	934.4	1.0320	0.0532	1.0852	846.0	898.4	3200
3206.2	705.40	0.0503	0	0.0503	902.7	0	902.7	1.0580	0	1.0580	872.9	872.9	3206.2

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 120°	140°	160°	180°	200°	220°	240°	260°	280°	300°	320°	340°	360°	380°
	v	0.02	333.6	344.6	356.6	368.6	380.6	392.6	404.5	416.5	428.4	440.4	452.3	464.2	476.2	488.1	500.0
1	h	69.7	1106.0	1114.3	1123.3	1132.4	1141.4	1150.4	1159.5	1168.5	1177.6	1186.7	1195.8	1204.9	1214.1	1223.3	1232.5
(101.74)	s	0.1326	1.9782	1.9928	2.0081	2.0230	2.0373	2.0512	2.0647	2.0779	2.0907	2.1031	2.1153	2.1271	2.1387	2.1501	2.1612
	v	0.02	173.7		177.96	184.01	190.04	196.06	202.1	208.1	214.1	220.0	226.0	232.0	238.0	244.0	249.9
2	h	94.0	1116.2		1122.6	1131.8	1140.9	1150.0	1159.1	1168.2	1177.3	1186.5	1195.6	1204.8	1213.9	1223.1	1232.3
(126.08)	s	0.1749	1.9200		1.9308	1.9458	1.9603	1.9743	1.9879	2.0011	2.0140	2.0265	2.0387	2.0506	2.0622	2.0735	2.0846
	v	0.02	118.7			122.48	126.53	130.56	134.58	138.59	142.60	146.60	150.60	154.59	158.58	162.57	166.56
3	h	109.4	1122.6			1131.2	1140.4	1149.6	1158.8	1167.9	1177.1	1186.2	1195.4	1204.6	1213.8	1223.0	1232.2
(141.48)	s	0.2008	1.8863			1.9003	1.9150	1.9291	1.9428	1.9561	1.9690	1.9815	1.9937	2.0057	2.0173	2.0287	2.0398
	v	0.02	90.63			91.71	94.77	97.81	100.84	103.86	106.87	109.88	112.88	115.88	118.88	121.88	124.87
4	h	120.9	1127.3			1130.6	1139.9	1149.2	1158.5	1167.6	1176.8	1186.0	1195.2	1204.4	1213.6	1222.8	1232.1
(152.97)	s	0.2198	1.8625			1.8678	1.8827	1.8969	1.9107	1.9240	1.9370	1.9496	1.9618	1.9738	1.9854	1.9968	2.0080
	v	0.02	73.52				75.71	78.16	80.59	83.01	85.43	87.85	90.25	92.66	95.06	97.46	99.86
5	h	130.1	1131.1				1139.4	1148.8	1158.1	1167.3	1176.5	1185.7	1195.0	1204.2	1213.4	1222.7	1231.9
(162.24)	s	0.2347	1.8441				1.8574	1.8718	1.8857	1.8991	1.9121	1.9247	1.9370	1.9490	1.9607	1.9721	1.9833
	v	0.02	61.98				63.00	65.05	67.09	69.12	71.14	73.16	75.17	77.18	79.18	81.18	83.18
6	h	138.0	1134.2				1138.9	1148.3	1157.7	1167.0	1176.3	1185.5	1194.7	1204.0	1213.2	1222.5	1231.8
(170.06)	s	0.2472	1.8292				1.8367	1.8512	1.8651	1.8786	1.8917	1.9044	1.9167	1.9287	1.9404	1.9518	1.9630
	v	0.02	53.64				53.93	55.69	57.45	59.19	60.93	62.67	64.39	66.12	67.84	69.56	71.27
7	h	144.8	1136.9				1138.4	1147.9	1157.4	1166.7	1176.0	1185.3	1194.5	1203.8	1213.1	1222.3	1231.6
(176.85)	s	0.2581	1.8167				1.8190	1.8336	1.8477	1.8613	1.8744	1.8871	1.8995	1.9115	1.9232	1.9347	1.9459
	v	0.02	47.34					48.67	50.22	51.75	53.28	54.80	56.31	57.82	59.33	60.84	62.34
8	h	150.8	1139.3					1147.5	1157.0	1166.3	1175.7	1185.0	1194.3	1203.6	1212.9	1222.2	1231.5
(182.86)	s	0.2674	1.8057					1.8184	1.8325	1.8462	1.8594	1.8721	1.8845	1.8966	1.9084	1.9199	1.9311
	v	0.02	42.40					43.21	44.59	45.96	47.32	48.67	50.03	51.37	52.71	54.06	55.39
9	h	156.2	1141.4					1147.0	1156.6	1166.0	1175.4	1184.8	1194.1	1203.4	1212.7	1222.0	1231.4
(188.28)	s	0.2759	1.7962					1.8049	1.8191	1.8328	1.8461	1.8589	1.8713	1.8834	1.8952	1.9067	1.9179
	v	0.02	38.42					38.85	40.09	41.33	42.56	43.78	45.00	46.21	47.42	48.63	49.84
10	h	161.2	1143.3					1146.6	1156.2	1165.7	1175.1	1184.5	1193.9	1203.2	1212.5	1221.9	1231.2
(193.21)	s	0.2835	1.7876					1.7927	1.8071	1.8208	1.8341	1.8470	1.8595	1.8716	1.8834	1.8950	1.9062
	v	0.02	35.14					35.27	36.41	37.54	38.66	39.77	40.88	41.99	43.09	44.19	45.29
11	h	165.7	1145.0					1146.1	1155.8	1165.4	1174.9	1184.3	1193.6	1203.0	1212.4	1221.7	1231.1
(197.75)	s	0.2903	1.7800					1.7816	1.7961	1.8100	1.8233	1.8362	1.8487	1.8609	1.8728	1.8843	1.8956
	v	0.02	32.40						33.34	34.38	35.41	36.43	37.45	38.47	39.48	40.49	41.50
12	h	170.0	1146.6						1155.4	1165.0	1174.6	1184.0	1193.4	1202.8	1212.2	1221.6	1230.9
(201.96)	s	0.2967	1.7730						1.7860	1.8000	1.8134	1.8264	1.8389	1.8511	1.8630	1.8745	1.8858
	v	0.02	30.06						30.74	31.71	32.66	33.61	34.55	35.49	36.43	37.36	38.29
13	h	173.9	1148.1						1155.1	1164.7	1174.3	1183.8	1193.2	1202.6	1212.0	1221.4	1230.8
(205.88)	s	0.3027	1.7665						1.7768	1.7908	1.8043	1.8173	1.8299	1.8421	1.8540	1.8656	1.8769
	v	0.02	28.04						28.52	29.41	30.30	31.19	32.06	32.94	33.81	34.68	35.54
14	h	177.6	1149.5						1154.6	1164.4	1174.0	1183.5	1193.0	1202.4	1211.8	1221.2	1230.6
(209.56)	s	0.3083	1.7605						1.7681	1.7822	1.7958	1.8088	1.8215	1.8337	1.8457	1.8573	1.8686
	v	0.02	26.80						27.15	28.00	28.85	29.70	30.53	31.37	32.20	33.03	33.85
14.696	h	180.1	1150.4						1154.4	1164.2	1173.8	1183.3	1192.8	1202.3	1211.7	1221.1	1230.5
(212.00)	s	0.3120	1.7566						1.7624	1.7766	1.7902	1.8033	1.8160	1.8283	1.8402	1.8518	1.8631
	v	0.02	26.29						26.59	27.43	28.26	29.09	29.91	30.73	31.54	32.35	33.16
15	h	181.1	1150.8						1154.3	1164.1	1173.7	1183.2	1192.8	1202.2	1211.7	1221.1	1230.5
(213.03)	s	0.3135	1.7549						1.7601	1.7742	1.7879	1.8010	1.8136	1.8259	1.8379	1.8495	1.8609
	v	0.02	24.75						24.90	25.69	26.47	27.25	28.02	28.79	29.56	30.32	31.08
16	h	184.4	1152.0						1153.8	1163.7	1173.4	1183.0	1192.5	1202.0	1211.5	1220.9	1230.3
(216.32)	s	0.3184	1.7497						1.7524	1.7667	1.7804	1.7936	1.8063	1.8186	1.8306	1.8422	1.8536

Temperature—Degrees Fahrenheit																	Abs. Press. Lb./Sq. In. (Sat. Temp.)
400°	420°	440°	460°	480°	500°	600°	700°	800°	900°	1000°	1100°	1200°	1300°	1400°	1600°		
512.0	523.9	535.8	547.7	559.7	571.6	631.2	690.8	750.4	809.9	869.5	929.1	988.7	1048.3	1107.8	1227.0	v	
1241.7	1251.0	1260.3	1269.6	1278.9	1288.3	1335.7	1383.8	1432.8	1482.7	1533.5	1585.2	1637.7	1691.2	1745.7	1857.5	h	1
2.1720	2.1827	2.1931	2.2034	2.2134	2.2233	2.2702	2.3137	2.3542	2.3923	2.4283	2.4625	2.4952	2.5265	2.5566	2.6137	s	(101.74)
255.9	261.9	267.8	273.8	279.8	285.7	315.5	345.4	375.1	404.9	434.7	464.5	494.3	524.1	553.9	613.5	v	
1241.6	1250.9	1260.2	1269.5	1278.8	1288.2	1335.6	1383.8	1432.8	1482.7	1533.5	1585.1	1637.7	1691.2	1745.7	1857.4	h	2
2.0955	2.1062	2.1166	2.1269	2.1369	2.1468	2.1938	2.2372	2.2778	2.3159	2.3519	2.3861	2.4188	2.4501	2.4802	2.5373	s	(126.08)
170.54	174.52	178.51	182.48	186.47	190.44	210.3	230.2	250.1	269.9	289.8	309.7	329.5	349.4	369.3	409.0	v	
1241.5	1250.7	1260.0	1269.4	1278.7	1288.1	1335.5	1383.7	1432.8	1482.7	1533.4	1585.1	1637.7	1691.2	1745.7	1857.4	h	3
2.0507	2.0614	2.0719	2.0821	2.0921	2.1021	2.1490	2.1925	2.2330	2.2712	2.3072	2.3414	2.3741	2.4054	2.4355	2.4926	s	(141.48)
127.86	130.85	133.84	136.83	139.82	142.80	157.73	172.64	187.55	202.4	217.4	232.3	247.1	262.0	276.9	306.7	v	
1241.3	1250.6	1259.9	1269.3	1278.7	1288.1	1335.5	1383.7	1432.7	1482.6	1533.4	1585.1	1637.7	1691.2	1745.7	1857.4	h	4
2.0189	2.0296	2.0401	2.0503	2.0603	2.0703	2.1173	2.1608	2.2013	2.2394	2.2755	2.3097	2.3424	2.3737	2.4038	2.4609	s	(152.97)
102.26	104.65	107.04	109.44	111.83	114.22	126.16	138.10	150.03	161.95	173.87	185.79	197.71	209.6	221.6	245.4	v	
1241.2	1250.5	1259.8	1269.2	1278.6	1288.0	1335.4	1383.6	1432.7	1482.6	1533.4	1585.1	1637.7	1691.2	1745.7	1857.4	h	5
1.9942	2.0049	2.0154	2.0256	2.0356	2.0456	2.0927	2.1361	2.1767	2.2148	2.2509	2.2851	2.3178	2.3491	2.3792	2.4363	s	(162.24)
85.18	87.18	89.18	91.17	93.17	95.16	105.12	115.07	125.01	134.95	144.89	154.82	164.76	174.69	184.62	204.5	v	
1241.1	1250.4	1259.7	1269.1	1278.5	1287.9	1335.3	1383.6	1432.6	1482.6	1533.4	1585.0	1637.6	1691.1	1745.6	1857.4	h	6
1.9740	1.9847	1.9952	2.0055	2.0155	2.0255	2.0725	2.1160	2.1566	2.1947	2.2307	2.2650	2.2977	2.3290	2.3591	2.4162	s	(170.06)
72.99	74.70	76.42	78.13	79.84	81.55	90.09	98.62	107.14	115.67	124.18	132.70	141.22	149.73	158.25	175.27	v	
1240.9	1250.3	1259.6	1269.0	1278.4	1287.8	1335.3	1383.5	1432.6	1482.5	1533.3	1585.0	1637.6	1691.1	1745.6	1857.4	h	7
1.9569	1.9676	1.9781	1.9884	1.9984	2.0084	2.0555	2.0990	2.1396	2.1777	2.2137	2.2480	2.2807	2.3120	2.3421	2.3992	s	(176.85)
63.84	65.35	66.85	68.34	69.84	71.34	78.82	86.28	93.74	101.20	108.66	116.11	123.56	131.01	138.46	153.36	v	
1240.8	1250.1	1259.5	1268.9	1278.3	1287.7	1335.2	1383.5	1432.6	1482.5	1533.3	1585.0	1637.6	1691.1	1745.6	1857.4	h	8
1.9420	1.9528	1.9633	1.9736	1.9836	1.9936	2.0407	2.0842	2.1248	2.1630	2.1990	2.2333	2.2660	2.2973	2.3274	2.3844	s	(182.86)
56.73	58.07	59.40	60.74	62.07	63.40	70.05	76.69	83.32	89.95	96.58	103.20	109.83	116.45	123.08	136.32	v	
1240.7	1250.0	1259.4	1268.8	1278.2	1287.6	1335.2	1383.4	1432.5	1482.5	1533.3	1585.0	1637.6	1691.1	1745.6	1857.4	h	9
1.9289	1.9397	1.9502	1.9605	1.9706	1.9806	2.0277	2.0712	2.1118	2.1500	2.1860	2.2203	2.2530	2.2843	2.3144	2.3715	s	(188.28)
51.04	52.24	53.45	54.65	55.85	57.05	63.03	69.01	74.98	80.95	86.92	92.88	98.84	104.80	110.77	122.69	v	
1240.6	1249.9	1259.3	1268.7	1278.1	1287.5	1335.1	1383.4	1432.5	1482.4	1533.2	1585.0	1637.6	1691.1	1745.6	1857.3	h	10
1.9172	1.9280	1.9385	1.9488	1.9589	1.9689	2.0160	2.0596	2.1002	2.1383	2.1744	2.2086	2.2413	2.2727	2.3028	2.3598	s	(193.21)
46.39	47.48	48.58	49.67	50.76	51.85	57.30	62.73	68.16	73.59	79.01	84.43	89.85	95.27	100.69	111.53	v	
1240.4	1249.8	1259.2	1268.6	1278.0	1287.4	1335.0	1383.3	1432.4	1482.4	1533.2	1584.9	1637.6	1691.1	1745.6	1857.3	h	11
1.9066	1.9173	1.9279	1.9382	1.9484	1.9583	2.0055	2.0490	2.0897	2.1278	2.1639	2.1981	2.2308	2.2621	2.2922	2.3493	s	(197.75)
42.51	43.51	44.51	45.52	46.52	47.52	52.51	57.50	62.48	67.45	72.42	77.40	82.36	87.33	92.30	102.24	v	
1240.3	1249.7	1259.0	1268.5	1277.9	1287.3	1335.0	1383.3	1432.4	1482.4	1533.2	1584.9	1637.5	1691.0	1745.5	1857.3	h	12
1.8969	1.9076	1.9182	1.9285	1.9387	1.9486	1.9958	2.0394	2.0800	2.1182	2.1543	2.1885	2.2212	2.2525	2.2827	2.3397	s	(201.96)
39.22	40.15	41.08	42.00	42.93	43.85	48.47	53.07	57.66	62.26	66.85	71.44	76.03	80.61	85.20	94.37	v	
1240.2	1249.5	1258.9	1268.4	1277.8	1287.3	1334.9	1383.2	1432.4	1482.3	1533.2	1584.9	1637.5	1691.0	1745.5	1857.3	h	13
1.8879	1.8987	1.9093	1.9196	1.9298	1.9398	1.9870	2.0306	2.0712	2.1094	2.1454	2.1797	2.2124	2.2437	2.2738	2.3309	s	(205.88)
36.41	37.27	38.13	38.99	39.85	40.71	45.00	49.27	53.54	57.81	62.07	66.33	70.59	74.85	79.11	87.63	v	
1240.0	1249.4	1258.8	1268.3	1277.7	1287.2	1334.8	1383.2	1432.3	1482.3	1533.1	1584.9	1637.5	1691.0	1745.5	1857.3	h	14
1.8796	1.8904	1.9010	1.9114	1.9216	1.9315	1.9788	2.0224	2.0630	2.1012	2.1372	2.1715	2.2042	2.2355	2.2657	2.3227	s	(209.56)
34.68	35.50	36.32	37.14	37.96	38.78	42.86	46.94	51.00	55.07	59.13	63.19	67.25	71.31	75.37	83.48	v	
1239.9	1249.3	1258.8	1268.2	1277.6	1287.1	1334.8	1383.2	1432.3	1482.3	1533.1	1584.8	1637.5	1691.0	1745.5	1857.3	h	14.696
1.8743	1.8850	1.8956	1.9060	1.9162	1.9261	1.9734	2.0170	2.0576	2.0958	2.1319	2.1662	2.1989	2.2302	2.2603	2.3174	s	(212.00)
33.97	34.78	35.58	36.38	37.19	37.99	41.99	45.98	49.97	53.95	57.93	61.91	65.89	69.86	73.84	81.79	v	
1239.9	1249.3	1258.7	1268.2	1277.6	1287.1	1334.8	1383.1	1432.3	1482.3	1533.1	1584.8	1637.5	1691.0	1745.5	1857.3	h	15
1.8719	1.8827	1.8933	1.9037	1.9139	1.9238	1.9711	2.0147	2.0554	2.0936	2.1296	2.1639	2.1966	2.2279	2.2580	2.3151	s	(213.03)
31.84	32.59	33.35	34.10	34.86	35.61	39.36	43.10	46.84	50.58	54.31	58.04	61.77	65.49	69.22	76.67	v	
1239.8	1249.2	1258.6	1268.0	1277.5	1287.0	1334.7	1383.1	1432.3	1482.2	1533.1	1584.8	1637.4	1691.0	1745.5	1857.3	h	16
1.8647	1.8755	1.8861	1.8965	1.9067	1.9167	1.9639	2.0076	2.0482	2.0864	2.1225	2.1568	2.1895	2.2208	2.2509	2.3080	s	(216.32)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 220°	230°	240°	250°	260°	270°	280°	290°	300°	320°	340°	360°	380°	400°
	v	0.02	23.39	23.41	23.78	24.16	24.53	24.90	25.26	25.63	26.00	26.36	27.08	27.80	28.52	29.24	29.95
17	h	187.6	1153.1	1153.4	1158.4	1163.4	1168.3	1173.1	1177.9	1182.7	1187.5	1192.3	1201.8	1211.3	1220.7	1230.2	1239.6
(219.44)	s	0.3231	1.7449	1.7453	1.7526	1.7597	1.7666	1.7734	1.7801	1.7866	1.7931	1.7994	1.8117	1.8238	1.8354	1.8468	1.8579
	v	0.02	22.17		22.44	22.79	23.14	23.49	23.84	24.19	24.53	24.88	25.56	26.25	26.93	27.60	28.28
18	h	190.6	1154.2		1158.0	1163.0	1167.9	1172.8	1177.7	1182.5	1187.3	1192.1	1201.6	1211.1	1220.6	1230.0	1239.5
(222.41)	s	0.3275	1.7403		1.7458	1.7530	1.7599	1.7668	1.7735	1.7800	1.7865	1.7928	1.8052	1.8173	1.8290	1.8404	1.8515
	v	0.02	21.08		21.24	21.57	21.91	22.24	22.57	22.90	23.23	23.56	24.20	24.85	25.50	26.14	26.78
19	h	193.4	1155.3		1157.7	1162.7	1167.6	1172.5	1177.4	1182.2	1187.1	1191.9	1201.4	1210.9	1220.4	1229.9	1239.4
(225.24)	s	0.3317	1.7360		1.7394	1.7466	1.7536	1.7605	1.7672	1.7738	1.7803	1.7867	1.7991	1.8111	1.8229	1.8343	1.8454
	v	0.02	20.09		20.15	20.48	20.79	21.11	21.43	21.74	22.05	22.36	22.98	23.60	24.21	24.82	25.43
20	h	196.2	1156.3		1157.3	1162.3	1167.3	1172.2	1177.1	1182.0	1186.8	1191.6	1201.2	1210.8	1220.3	1229.7	1239.2
(227.96)	s	0.3356	1.7319		1.7333	1.7405	1.7476	1.7545	1.7613	1.7679	1.7744	1.7808	1.7932	1.8053	1.8170	1.8285	1.8396
	v	0.017	19.192			19.482	19.786	20.09	20.39	20.69	20.99	21.29	21.88	22.46	23.05	23.63	24.21
21	h	198.8	1157.2			1162.0	1167.0	1171.9	1176.8	1181.7	1186.6	1191.4	1201.0	1210.6	1220.1	1229.6	1239.1
(230.57)	s	0.3395	1.7280			1.7348	1.7419	1.7488	1.7556	1.7622	1.7687	1.7751	1.7876	1.7997	1.8115	1.8230	1.8341
	v	0.017	18.375			18.579	18.870	19.160	19.449	19.736	20.02	20.31	20.87	21.43	21.99	22.55	23.11
22	h	201.3	1158.1			1161.6	1166.6	1171.6	1176.5	1181.4	1186.3	1191.2	1200.8	1210.4	1219.9	1229.5	1239.0
(233.07)	s	0.3431	1.7242			1.7292	1.7363	1.7433	1.7501	1.7568	1.7633	1.7698	1.7823	1.7944	1.8062	1.8177	1.8289
	v	0.017	17.627			17.754	18.034	18.312	18.589	18.864	19.138	19.411	19.953	20.49	21.03	21.56	22.09
23	h	203.8	1159.0			1161.2	1166.3	1171.3	1176.3	1181.2	1186.1	1190.9	1200.6	1210.2	1219.8	1229.3	1238.8
(235.49)	s	0.3466	1.7206			1.7239	1.7311	1.7381	1.7449	1.7516	1.7582	1.7646	1.7772	1.7894	1.8012	1.8127	1.8238
	v	0.017	16.938			16.997	17.267	17.535	17.801	18.065	18.329	18.590	19.111	19.628	20.14	20.65	21.17
24	h	206.1	1159.8			1160.9	1166.0	1171.0	1176.0	1180.9	1185.8	1190.7	1200.4	1210.0	1219.6	1229.2	1238.7
(237.82)	s	0.3500	1.7172			1.7188	1.7260	1.7330	1.7399	1.7466	1.7532	1.7597	1.7723	1.7845	1.7963	1.8078	1.8190
	v	0.017	16.303				16.561	16.819	17.076	17.330	17.584	17.836	18.337	18.834	19.329	19.821	20.31
25	h	208.4	1160.6				1165.6	1170.7	1175.7	1180.6	1185.6	1190.5	1200.2	1209.8	1219.4	1229.0	1238.5
(240.07)	s	0.3533	1.7139				1.7212	1.7282	1.7351	1.7418	1.7485	1.7550	1.7676	1.7798	1.7917	1.8032	1.8144
	v	0.017	15.715				15.910	16.159	16.406	16.652	16.896	17.139	17.622	18.101	18.577	19.051	19.524
26	h	210.6	1161.3				1165.3	1170.4	1175.4	1180.4	1185.3	1190.2	1200.0	1209.7	1219.3	1228.9	1238.4
(242.25)	s	0.3564	1.7108				1.7164	1.7235	1.7305	1.7372	1.7439	1.7504	1.7631	1.7753	1.7872	1.7987	1.8100
	v	0.017	15.170				15.307	15.548	15.786	16.024	16.259	16.494	16.960	17.422	17.882	18.339	18.794
27	h	212.8	1162.0				1165.0	1170.1	1175.1	1180.1	1185.1	1190.0	1199.8	1209.5	1219.1	1228.7	1238.3
(244.36)	s	0.3594	1.7078				1.7119	1.7190	1.7260	1.7328	1.7395	1.7460	1.7587	1.7710	1.7829	1.7944	1.8057
	v	0.017	14.663				14.747	14.980	15.211	15.440	15 669	15.895	16.345	16.792	17.235	17.677	18.116
28	h	214.8	1162.7				1164.6	1169.7	1174.8	1179.8	1184.8	1189.8	1199.6	1209.3	1218.9	1228.6	1238.1
(246.41)	s	0.3623	1.7048				1.7075	1.7146	1.7217	1.7285	1.7352	1.7417	1.7545	1.7668	1.7787	1.7903	1.8016
	v	0.017	14.189				14.225	14.451	14.675	14.897	15.118	15.337	15.773	16.205	16.634	17.061	17.485
29	h	216.9	1163.4				1164.3	1169.4	1174.5	1179.6	1184.6	1189.5	1199.3	1209.1	1218.8	1228.4	1238.0
(248.40)	s	0.3652	1.7020				1.7032	1.7104	1.7175	1.7243	1.7310	1.7376	1.7504	1.7627	1.7747	1.7863	1.7976
	v	0.017	13.746					13.957	14.174	14.390	14.604	14.816	15.238	15.657	16.072	16.485	16.897
30	h	218.8	1164.1					1169.1	1174.2	1179.3	1184.3	1189.3	1199.1	1208.9	1218.6	1228.3	1237.9
(250.33)	s	0.3680	1.6993					1.7063	1.7134	1.7203	1.7270	1.7336	1.7464	1.7588	1.7708	1.7824	1.7937
	v	0.017	13.330					13.495	13.706	13.915	14.123	14.329	14.738	15.144	15.547	15.947	16.346
31	h	220.7	1164.7					1168.8	1173.9	1179.0	1184.0	1189.0	1198.9	1208.7	1218.4	1228.1	1237.7
(252.22)	s	0.3707	1.6967					1.7024	1.7095	1.7164	1.7231	1.7298	1.7426	1.7550	1.7670	1.7787	1.7900
	v	0.017	12.940					13.062	13.267	13.470	13.672	13.872	14.270	14.664	15.055	15.443	15.829
32	h	222.6	1165.4					1168.5	1173.6	1178.7	1183.8	1188.8	1198.7	1208.5	1218.3	1227.9	1237.6
(254.05)	s	0.3733	1.6941					1.6985	1.7056	1.7126	1.7194	1.7260	1.7389	1.7513	1.7634	1.7750	1.7864
	v	0.017	12.572					12.656	12.855	13.052	13.249	13.443	13.830	14.212	14.592	14.969	15.344
33	h	224.4	1166.0					1168.1	1173.3	1178.4	1183.5	1188.6	1198.5	1208.3	1218.1	1227.8	1237.4
(255.84)	s	0.3758	1.6917					1.6947	1.7019	1.7089	1.7157	1.7224	1.7353	1.7477	1.7598	1.7715	1.7829
	v	0.017	12.226					12.273	12.467	12.659	12.850	13.040	13.415	13.788	14.157	14.523	14.888
34	h	226.2	1166.5					1167.8	1173.0	1178.2	1183.3	1188.3	1198.3	1208.2	1217.9	1227.6	1237.3
(257.58)	s	0.3783	1.6893					1.6911	1.6983	1.7053	1.7121	1.7188	1.7318	1.7443	1.7564	1.7681	1.7794

Temperature—Degrees Fahrenheit																	Abs. Press. Lb./Sq. In. (Sat. Temp.)
420°	440°	460°	480°	500°	550°	600°	650°	700°	800°	900°	1000°	1100°	1200°	1400°	1600°		
30.67	31.38	32.09	32.80	33.51	35.28	37.04	38.80	40.56	44.08	47.60	51.11	54.62	58.13	65.15	72.16	v	
1249.1	1258.5	1267.9	1277.4	1286.9	1310.7	1334.6	1358.7	1383.0	1432.2	1482.2	1533.1	1584.8	1637.4	1745.5	1857.3	h	**17**
1.8687	1.8794	1.8897	1.8999	1.9099	1.9341	1.9572	1.9795	2.0009	2.0415	2.0797	2.1158	2.1501	2.1828	2.2442	2.3013	s	(219.44)
28.95	29.63	30.30	30.97	31.64	33.31	34.98	36.64	38.31	41.63	44.95	48.27	51.59	54.90	61.53	68.15	v	
1248.9	1258.4	1267.8	1277.3	1286.8	1310.6	1334.6	1358.7	1383.0	1432.2	1482.2	1533.0	1584.8	1637.4	1745.5	1857.2	h	**18**
1.8623	1.8730	1.8834	1.8936	1.9035	1.9277	1.9509	1.9731	1.9945	2.0352	2.0734	2.1095	2.1438	2.1765	2.2379	2.2950	s	(222.41)
27.42	28.06	28.70	29.33	29.97	31.55	33.13	34.71	36.29	39.44	42.58	45.73	48.87	52.01	58.29	64.57	v	
1248.8	1258.3	1267.7	1277.2	1286.7	1310.5	1334.5	1358.6	1382.9	1432.1	1482.1	1533.0	1584.7	1637.4	1745.4	1857.2	h	**19**
1.8563	1.8669	1.8773	1.8875	1.8975	1.9217	1.9449	1.9671	1.9885	2.0292	2.0674	2.1035	2.1378	2.1705	2.2320	2.2890	s	(225.24)
26.04	26.65	27.25	27.86	28.46	29.97	31.47	32.97	34.47	37.46	40.45	43.44	46.42	49.41	55.37	61.34	v	
1248.7	1258.2	1267.6	1277.1	1286.6	1310.5	1334.4	1358.6	1382.9	1432.1	1482.1	1533.0	1584.7	1637.4	1745.4	1857.2	h	**20**
1.8505	1.8612	1.8716	1.8818	1.8918	1.9160	1.9392	1.9614	1.9829	2.0235	2.0618	2.0978	2.1321	2.1648	2.2263	2.2834	s	(227.96)
24.79	25.37	25.95	26.52	27.10	28.54	29.97	31.40	32.82	35.68	38.52	41.37	44.21	47.05	52.74	58.42	v	
1248.6	1258.1	1267.5	1277.0	1286.5	1310.4	1334.4	1358.5	1382.8	1432.0	1482.1	1532.9	1584.7	1637.3	1745.4	1857.2	h	**21**
1.8450	1.8557	1.8661	1.8763	1.8863	1.9106	1.9338	1.9560	1.9774	2.0181	2.0564	2.0925	2.1267	2.1594	2.2209	2.2780	s	(230.57)
23.66	24.21	24.76	25.31	25.86	27.23	28.60	29.97	31.33	34.05	36.77	39.49	42.20	44.91	50.34	55.76	v	
1248.4	1257.9	1267.4	1276.9	1286.4	1310.3	1334.3	1358.5	1382.8	1432.0	1482.0	1532.9	1584.7	1637.3	1745.4	1857.2	h	**22**
1.8398	1.8505	1.8609	1.8711	1.8811	1.9054	1.9286	1.9509	1.9723	2.0130	2.0512	2.0873	2.1216	2.1543	2.2158	2.2729	s	(233.07)
22.62	23.15	23.68	24.21	24.73	26.04	27.35	28.66	29.96	32.57	35.17	37.77	40.36	42.96	48.15	53.33	v	
1248.3	1257.8	1267.3	1276.8	1286.4	1310.2	1334.2	1358.4	1382.7	1432.0	1482.0	1532.9	1584.6	1637.3	1745.4	1857.2	h	**23**
1.8348	1.8455	1.8559	1.8661	1.8762	1.9004	1.9236	1.9459	1.9674	2.0081	2.0463	2.0824	2.1167	2.1494	2.2109	2.2680	s	(235.49)
21.67	22.18	22.69	23.19	23.70	24.96	26.21	27.46	28.71	31.21	33.70	36.19	38.68	41.17	46.14	51.11	v	
1248.2	1257.7	1267.2	1276.7	1286.3	1310.2	1334.2	1358.4	1382.7	1431.9	1482.0	1532.9	1584.6	1637.3	1745.4	1857.2	h	**24**
1.8300	1.8407	1.8511	1.8614	1.8714	1.8957	1.9189	1.9412	1.9626	2.0034	2.0416	2.0777	2.1120	2.1447	2.2062	2.2633	s	(237.82)
20.80	21.29	21.77	22.26	22.74	23.95	25.16	26.36	27.56	29.96	32.35	34.74	37.13	39.52	44.30	49.07	v	
1248.1	1257.6	1267.1	1276.6	1286.2	1310.1	1334.1	1358.3	1382.6	1431.9	1481.9	1532.8	1584.6	1637.3	1745.3	1857.2	h	**25**
1.8254	1.8361	1.8465	1.8568	1.8668	1.8911	1.9144	1.9367	1.9581	1.9988	2.0371	2.0732	2.1075	2.1402	2.2017	2.2587	s	**(240.07)**
19.994	20.46	20.93	21.40	21.86	23.03	24.19	25.34	26.50	28.80	31.11	33.41	35.70	38.00	42.59	47.18	v	
1248.0	1257.5	1267.0	1276.5	1286.1	1310.0	1334.0	1358.2	1382.6	1431.8	1481.9	1532.8	1584.6	1637.2	1745.3	1857.1	h	**26**
1.8210	1.8317	1.8421	1.8524	1.8624	1.8868	1.9100	1.9323	1.9538	1.9945	2.0327	2.0689	2.1031	2.1359	2.1973	2.2544	s	**(242.25)**
19.248	19.700	20.15	20.60	21.05	22.17	23.29	24.40	25.51	27.73	29.95	32.17	34.38	36.59	41.01	45.43	v	
1247.8	1257.4	1266.9	1276.4	1286.0	1309.9	1334.0	1358.2	1382.5	1431.8	1481.9	1532.8	1584.6	1637.2	1745.3	1857.1	h	**27**
1.8167	1.8274	1.8379	1.8482	1.8582	1.8825	1.9058	1.9281	1.9496	1.9903	2.0285	2.0647	2.0990	2.1317	2.1932	2.2503	s	(244.36)
18.554	18.991	19.426	19.860	20.29	21.37	22.45	23.53	24.60	26.74	28.88	31.02	33.15	35.28	39.55	43.81	v	
1247.7	1257.2	1266.8	1276.3	1285.9	1309.9	1333.9	1358.1	1382.5	1431.8	1481.8	1532.8	1584.5	1637.2	1745.3	1857.1	h	**28**
1.8126	1.8233	1.8338	1.8441	1.8541	1.8785	1.9017	1.9241	1.9455	1.9863	2.0245	2.0607	2.0950	2.1277	2.1892	2.2462	s	**(246.41)**
17.909	18.331	18.751	19.171	19.590	20.63	21.67	22.71	23.75	25.82	27.88	29.95	32.01	34.07	38.18	42.30	v	
1247.6	1257.1	1266.7	1276.2	1285.8	1309.8	1333.9	1358.1	1382.4	1431.7	1481.8	1532.7	1584.5	1637.2	1745.3	1857.1	h	**29**
1.8086	1.8193	1.8298	1.8401	1.8502	1.8746	1.8978	1.9201	1.9416	1.9824	2.0206	2.0568	2.0911	2.1238	2.1853	2.2424	s	(248.40)
17.306	17.714	18.121	18.528	18.933	19.943	20.95	21.95	22.96	24.96	26.95	28.95	30.94	32.93	36.91	40.89	v	
1247.5	1257.0	1266.6	1276.2	1285.7	1309.7	1333.8	1358.0	1382.4	1431.7	1481.8	1532.7	1584.5	1637.2	1745.3	1857.1	h	**30**
1.8047	1.8155	1.8260	1.8363	1.8464	1.8708	1.8940	1.9164	1.9379	1.9786	2.0169	2.0530	2.0873	2.1201	2.1815	2.2386	s	(250.33)
16.743	17.138	17.532	17.926	18.318	19.296	20.27	21.24	22.21	24.15	26.08	28.01	29.94	31.87	35.72	39.57	v	
1247.3	1256.9	1266.5	1276.1	1285.6	1309.6	1333.7	1358.0	1382.3	1431.6	1481.7	1532.7	1584.5	1637.1	1745.2	1857.1	h	**31**
1.8010	1.8118	1.8223	1.8326	1.8427	1.8671	1.8904	1.9127	1.9342	1.9750	2.0133	2.0494	2.0837	2.1164	2.1779	2.2350	s	(252.22)
16.214	16.598	16.980	17.361	17.741	18.689	19.634	20.58	21.52	23.39	25.26	27.13	29.00	30.87	34.60	38.33	v	
1247.2	1256.8	1266.4	1276.0	1285.5	1309.6	1333.7	1357.9	1382.3	1431.6	1481.7	1532.6	1584.4	1637.1	1745.2	1857.1	h	**32**
1.7974	1.8082	1.8187	1.8290	1.8391	1.8635	1.8868	1.9092	1.9307	1.9715	2.0097	2.0459	2.0802	2.1129	2.1744	2.2315	s	(254.05)
15.718	16.090	16.461	16.831	17.200	18.120	19.036	19.950	20.86	22.68	24.50	26.31	28.12	29.93	33.55	37.17	v	
1247.1	1256.7	1266.3	1275.9	1285.4	1309.5	1333.6	1357.8	1382.2	1431.6	1481.7	1532.6	1584.4	1637.1	1745.2	1857.1	h	**33**
1.7939	1.8047	1.8153	1.8256	1.8357	1.8601	1.8834	1.9058	1.9273	1.9681	2.0063	2.0425	2.0768	2.1095	2.1710	2.2281	s	(255.84)
15.251	15.612	15.973	16.332	16.690	17.584	18.474	19.361	20.25	22.01	23.78	25.54	27.30	29.05	32.57	36.08	v	
1246.9	1256.6	1266.2	1275.8	1285.4	1309.4	1333.5	1357.8	1382.2	1431.5	1481.6	1532.6	1584.4	1637.1	1745.2	1857.0	h	**34**
1.7905	1.8013	1.8119	1.8222	1.8323	1.8567	1.8800	1.9024	1.9239	1.9647	2.0030	2.0392	2.0735	2.1062	2.1677	2.2248	s	**(257.58)**

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 260°	270°	280°	290°	300°	320°	340°	360°	380°	400°	420°	440°	460°	480°
	v	0.017	11.898	11.911	12.101	12.288	12.474	12.659	13.025	13.387	13.746	14.103	14.457	14.810	15.162	15.512	15.862
35	h	227.9	1167.1	1167.5	1172.7	1177.9	1183.0	1188.1	1198.1	1208.0	1217.8	1227.5	1237.2	1246.8	1256.4	1266.1	1275.7
(259.28)	s	0.3807	1.6870	1.6875	1.6948	1.7018	1.7087	1.7154	1.7284	1.7409	1.7530	1.7647	1.7761	1.7872	1.7980	1.8086	1.8189
	v	0.017	11.588		11.755	11.938	12.119	12.299	12.656	13.009	13.358	13.705	14.051	14.394	14.736	15.077	15.417
36	h	229.6	1167.6		1172.4	1177.6	1182.7	1187.8	1197.9	1207.8	1217.6	1227.3	1237.0	1246.7	1256.3	1266.0	1275.6
(260.95)	s	0.3831	1.6848		1.6913	1.6984	1.7053	1.7120	1.7251	1.7376	1.7497	1.7615	1.7729	1.7840	1.7948	1.8054	1.8158
	v	0.017	11.294		11.428	11.606	11.783	11.959	12.307	12.651	12.991	13.330	13.666	14.001	14.334	14.666	14.997
37	h	231.3	1168.2		1172.1	1177.3	1182.5	1187.6	1197.6	1207.6	1217.4	1227.2	1236.9	1246.6	1256.2	1265.8	1275.5
(262.57)	s	0.3854	1.6826		1.6880	1.6951	1.7020	1.7087	1.7218	1.7344	1.7466	1.7583	1.7698	1.7809	1.7917	1.8023	1.8127
	v	0.017	11.015		11.118	11.292	11.465	11.637	11.976	12.312	12.644	12.974	13.302	13.628	13.953	14.276	14.599
38	h	232.9	1168.7		1171.8	1177.0	1182.2	1187.3	1197.4	1207.4	1217.3	1227.0	1236.7	1246.4	1256.1	1265.7	1275.4
(264.16)	s	0.3876	1.6805		1.6847	1.6918	1.6988	1.7056	1.7187	1.7313	1.7435	1.7552	1.7667	1.7778	1.7887	1.7993	1.8097
	v	0.017	10.750		10.824	10.994	11.163	11.331	11.662	11.990	12.314	12.636	12.956	13.274	13.591	13.906	14.221
39	h	234.5	1169.2		1171.5	1176.7	1181.9	1187.1	1197.2	1207.2	1217.1	1226.9	1236.6	1246.3	1256.0	1265.6	1275.3
(265.72)	s	0.3898	1.6784		1.6815	1.6886	1.6956	1.7024	1.7156	1.7282	1.7404	1.7522	1.7637	1.7748	1.7857	1.7963	1.8067
	v	0.017	10.498		10.544	10.711	10.876	11.040	11.364	11.684	12.001	12.315	12.628	12.938	13.247	13.555	13.862
40	h	236.0	1169.7		1171.2	1176.5	1181.7	1186.8	1197.0	1207.0	1216.9	1226.7	1236.5	1246.2	1255.9	1265.5	1275.2
(267.25)	s	0.3919	1.6763		1.6783	1.6855	1.6925	1.6994	1.7126	1.7252	1.7375	1.7493	1.7608	1.7719	1.7828	1.7934	1.8038
	v	0.017	10.258		10.279	10.442	10.603	10.764	11.081	11.393	11.703	12.010	12.315	12.619	12.920	13.221	13.521
41	h	237.6	1170.2		1170.9	1176.2	1181.4	1186.6	1196.8	1206.8	1216.7	1226.6	1236.3	1246.1	1255.8	1265.4	1275.1
(268.74)	s	0.3940	1.6743		1.6753	1.6825	1.6895	1.6964	1.7096	1.7223	1.7346	1.7464	1.7579	1.7691	1.7800	1.7906	1.8010
	v	0.017	10.029			10.185	10.344	10.501	10.810	11.116	11.419	11.719	12.018	12.314	12.609	12.903	13.195
42	h	239.0	1170.7			1175.9	1181.1	1186.3	1196.6	1206.6	1216.6	1226.4	1236.2	1245.9	1255.6	1265.3	1275.0
(270.21)	s	0.3960	1.6724			1.6795	1.6866	1.6935	1.7067	1.7195	1.7318	1.7436	1.7551	1.7663	1.7772	1.7879	1.7983
	v	0.017	9.810			9.941	10.096	10.249	10.553	10.852	11.149	11.442	11.734	12.024	12.312	12.599	12.885
43	h	240.5	1171.1			1175.6	1180.9	1186.1	1196.3	1206.4	1216.4	1226.3	1236.1	1245.8	1255.5	1265.2	1274.9
(271.64)	s	0.3980	1.6706			1.6766	1.6837	1.6906	1.7039	1.7167	1.7290	1.7409	1.7524	1.7636	1.7746	1.7852	1.7956
	v	0.017	9.601			9.707	9.859	10.010	10.307	10.600	10.890	11.178	11.463	11.747	12.029	12.310	12.590
44	h	242.0	1171.6			1175.3	1180.6	1185.8	1196.1	1206.2	1216.2	1226.1	1235.9	1245.7	1255.4	1265.1	1274.8
(273.05)	s	0.4000	1.6687			1.6738	1.6809	1.6878	1.7012	1.7140	1.7263	1.7382	1.7498	1.7610	1.7719	1.7826	1.7930
	v	0.017	9.401			9.484	9.633	9.781	10.072	10.359	10.643	10.925	11.204	11.482	11.758	12.033	12.307
45	h	243.4	1172.0			1175.0	1180.3	1185.6	1195.9	1206.0	1216.0	1225.9	1235.8	1245.6	1255.3	1265.0	1274.7
(274.44)	s	0.4019	1.6669			1.6709	1.6781	1.6850	1.6985	1.7113	1.7237	1.7356	1.7472	1.7584	1.7693	1.7800	1.7904
	v	0.017	9.209			9.271	9.417	9.562	9.847	10.129	10.407	10.683	10.957	11.229	11.499	11.768	12.036
46	h	244.8	1172.4			1174.7	1180.0	1185.3	1195.7	1205.8	1215.9	1225.8	1235.6	1245.4	1255.2	1264.9	1274.6
(275.80)	s	0.4038	1.6652			1.6682	1.6754	1.6824	1.6958	1.7087	1.7211	1.7330	1.7446	1.7559	1.7668	1.7775	1.7879
	v	0.017	9.025			9.066	9.210	9.352	9.632	9.908	10.181	10.451	10.720	10.986	11.251	11.515	11.777
47	h	246.1	1172.9			1174.4	1179.8	1185.1	1195.5	1205.6	1215.7	1225.6	1235.5	1245.3	1255.1	1264.8	1274.5
(277.13)	s	0.4057	1.6634			1.6655	1.6727	1.6797	1.6932	1.7061	1.7185	1.7305	1.7421	1.7534	1.7644	1.7751	1.7855
	v	0.017	8.848			8.870	9.011	9.151	9.426	9.697	9.965	10.230	10.493	10.754	11.014	11.272	11.529
48	h	247.5	1173.3			1174.1	1179.5	1184.8	1195.2	1205.4	1215.5	1225.5	1235.4	1245.2	1254.9	1264.7	1274.4
(278.45)	s	0.4075	1.6617			1.6629	1.6701	1.6771	1.6907	1.7036	1.7161	1.7281	1.7397	1.7510	1.7620	1.7727	1.7831
	v	0.017	8.678			8.682	8.821	8.958	9.228	9.494	9.757	10.017	10.275	10.531	10.786	11.039	11.291
49	h	248.8	1173.7			1173.8	1179.2	1184.6	1195.0	1205.2	1215.3	1225.3	1235.2	1245.0	1254.8	1264.6	1274.3
(279.74)	s	0.4093	1.6601			1.6603	1.6675	1.6746	1.6882	1.7011	1.7136	1.7256	1.7373	1.7486	1.7596	1.7703	1.7807
	v	0.017	8.515				8.638	8.773	9.038	9.299	9.557	9.812	10.065	10.317	10.567	10.815	11.062
50	h	250.1	1174.1				1178.9	1184.3	1194.8	1205.0	1215.2	1225.2	1235.1	1244.9	1254.7	1264.5	1274.2
(281.01)	s	0.4110	1.6585				1.6650	1.6721	1.6857	1.6987	1.7112	1.7233	1.7349	1.7462	1.7572	1.7680	1.7784
	v	0.017	8.359				8.462	8.595	8.855	9.112	9.365	9.616	9.865	10.111	10.356	10.600	10.843
51	h	251.4	1174.4				1178.6	1184.0	1194.6	1204.9	1215.0	1225.0	1234.9	1244.8	1254.6	1264.4	1274.1
(282.26)	s	0.4127	1.6569				1.6625	1.6696	1.6833	1.6963	1.7089	1.7209	1.7326	1.7439	1.7549	1.7657	1.7762

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
500°	520°	540°	560°	580°	600°	650°	700°	750°	800°	900°	1000°	1100°	1200°	1400°	1600°		
16.210	16.558	16.905	17.251	17.597	17.943	18.805	19.666	20.52	21.38	23.10	24.81	26.51	28.22	31.63	35.04	v	
1285.3	1294.9	1304.5	1314.1	1323.8	1333.5	1357.7	1382.1	1406.7	1431.5	1481.6	1532.6	1584.4	1637.1	1745.2	1857.0	h	35
1.8290	1.8390	1.8487	1.8582	1.8676	1.8768	1.8992	1.9207	1.9414	1.9615	1.9998	2.0360	2.0703	2.1030	2.1645	2.2216	s	(259.28)
15.756	16.094	16.432	16.769	17.106	17.442	18.281	19.117	19.953	20.79	22.45	24.12	25.78	27.44	30.76	34.07	v	
1285.2	1294.8	1304.4	1314.1	1323.7	1333.4	1357.7	1382.1	1406.7	1431.5	1481.6	1532.5	1584.3	1637.0	1745.2	1857.0	h	36
1.8259	1.8358	1.8455	1.8551	1.8644	1.8737	1.8961	1.9176	1.9383	1.9584	1.9967	2.0329	2.0672	2.0999	2.1614	2.2185	s	(260.95)
15.327	15.656	15.985	16.313	16.641	16.968	17.784	18.599	19.412	20.22	21.84	23.46	25.08	26.69	29.92	33.15	v	
1285.1	1294.7	1304.3	1314.0	1323.6	1333.3	1357.6	1382.0	1406.6	1431.4	1481.5	1532.5	1584.3	1637.0	1745.2	1857.0	h	37
1.8228	1.8327	1.8424	1.8520	1.8614	1.8706	1.8930	1.9145	1.9353	1.9554	1.9936	2.0298	2.0641	2.0969	2.1584	2.2155	s	(262.57)
14.920	15.241	15.561	15.881	16.200	16.519	17.314	18.107	18.899	19.689	21.27	22.84	24.42	25.99	29.14	32.28	v	
1285.0	1294.6	1304.3	1313.9	1323.6	1333.3	1357.6	1382.0	1406.6	1431.4	1481.5	1532.5	1584.3	1637.0	1745.1	1857.0	h	38
1.8198	1.8297	1.8394	1.8490	1.8584	1.8676	1.8900	1.9115	1.9323	1.9524	1.9907	2.0269	2.0612	2.0939	2.1554	2.2126	s	(264.16)
14.535	14.847	15.159	15.471	15.782	16.093	16.868	17.641	18.413	19.183	20.72	22.26	23.79	25.32	28.39	31.45	v	
1284.9	1294.5	1304.2	1313.8	1323.5	1333.2	1357.5	1381.9	1406.6	1431.3	1481.5	1532.4	1584.3	1637 0	1745.1	1857.0	h	39
1.8168	1.8268	1.8365	1.8461	1.8555	1.8647	1.8871	1.9087	1.9294	1.9495	1.9878	2.0240	2.0583	2.0911	2.1526	2.2097	s	(265.72)
14.168	14.473	14.778	15.082	15.385	15.688	16.444	17.198	17.951	18.702	20.20	21.70	23.20	24.69	27.68	30.66	v	
1284.8	1294.5	1304.1	1313.8	1323.4	1333.1	1357.4	1381.9	1406.5	1431.3	1481.4	1532.4	1584.3	1637.0	1745.1	1857.0	h	40
1.8140	1.8239	1.8337	1.8432	1.8526	1.8619	1.8843	1.9058	1.9266	1.9467	1.9850	2.0212	2.0555	2.0883	2.1498	2.2069	s	(267.25)
13.819	14.117	14.414	14.711	15.008	15.303	16.041	16.777	17.512	18.244	19.708	21.17	22.63	24.09	27.00	29.91	v	
1284.7	1294.4	1304.0	1313.7	1323.4	1333.1	1357.4	1381.8	1406.5	1431.3	1481.4	1532.4	1584.2	1636.9	1745.1	1857.0	h	41
1.8112	1.8211	1.8309	1.8405	1.8499	1.8591	1.8815	1.9031	1.9239	1.9439	1.9823	2.0184	2.0528	2.0855	2.1470	2.2042	s	(268.74)
13.487	13.778	14.069	14.358	14.648	14.937	15.657	16.376	17.093	17.809	19.238	20.66	22.09	23.51	26.36	29.20	v	
1284.6	1294.3	1303.9	1313.6	1323.3	1333.0	1357.3	1381.8	1406.4	1431.2	1481.4	1532.4	1584.2	1636.9	1745.1	1856.9	h	42
1.8084	1.8184	1.8282	1.8378	1.8471	1.8564	1.8788	1.9004	1.9212	1.9413	1.9796	2.0158	2.0501	2.0829	2.1444	2.2015	s	(270.21)
13.171	13.455	13.739	14.022	14.305	14.587	15.291	15.993	16.694	17.393	18.790	20.18	21.58	22.97	25.75	28.52	v	
1284.5	1294.2	1303.9	1313.5	1323.2	1332.9	1357.3	1381.7	1406.4	1431.2	1481.3	1532.3	1584.2	1636.9	1745.1	1856.9	h	43
1.8058	1.8158	1.8255	1.8351	1.8445	1.8538	1.8762	1.8978	1.9186	1.9387	1.9770	2.0132	2.0475	2.0803	2.1418	2.1989	s	(271.64)
12.868	13.147	13.424	13.701	13.977	14.254	14.942	15.628	16.313	16.997	18.361	19.724	21.08	22.44	25.16	27.87	v	
1284.4	1294.1	1303.8	1313.5	1323.2	1332.9	1357.2	1381.7	1406.3	1431.1	1481.3	1532.3	1584.2	1636.9	1745.0	1856.9	h	44
1.8032	1.8132	1.8229	1.8325	1.8419	1.8512	1.8736	1.8952	1.9160	1.9361	1.9744	2.0106	2.0450	2.0777	2.1392	2.1964	s	(273.05)
12.580	12.852	13.123	13.394	13.665	13.935	14.608	15.279	15.949	16.618	17.952	19.285	20.62	21.94	24.60	27.25	v	
1284.4	1294.0	1303.7	1313.4	1323.1	1332.8	1357.1	1381.6	1406.3	1431.1	1481.3	1532.3	1584.1	1636.9	1745.0	1856.9	h	45
1.8006	1.8106	1.8204	1.8300	1.8394	1.8487	1.8711	1.8927	1.9135	1.9336	1.9719	2.0081	2.0425	2.0752	2.1368	2.1939	s	(274.44)
12.303	12.570	12.836	13.101	13.366	13.630	14.288	14.945	15.601	16.255	17.561	18.864	20.17	21.47	24.07	26.66	v	
1284.3	1293.9	1303.6	1313.3	1323.0	1332.7	1357.1	1381.6	1406.2	1431.0	1481.3	1532.3	1584.1	1636.8	1745.0	1856.9	h	46
1.7981	1.8081	1.8179	1.8275	1.8369	1.8462	1.8686	1.8902	1.9110	1.9312	1.9695	2.0057	2.0400	2.0728	2.1343	2.1915	s	(275.80)
12.039	12.300	12.560	12.820	13.079	13.338	13.983	14.626	15.268	15.908	17.186	18.462	19.736	21.01	23.55	26.09	v	
1284.2	1293.9	1303.5	1313.2	1323.0	1332.7	1357.0	1381.5	1406.2	1431.0	1481.2	1532.2	1584.1	1636.8	1745.0	1856.9	h	47
1.7957	1.8057	1.8155	1.8251	1.8345	1.8438	1.8662	1.8878	1.9086	1.9288	1.9671	2.0033	2.0377	2.0704	2.1320	2.1891	s	(277.13)
11.786	12.042	12.296	12.551	12.804	13.058	13.690	14.320	14.948	15.575	16.827	18.077	19.325	20.57	23.06	25.55	v	
1284.1	1293.8	1303.5	1313.2	1322.9	1332.6	1357.0	1381.5	1406.1	1431.0	1481.2	1532.2	1584.1	1636.8	1745.0	1856.9	h	48
1.7933	1.8033	1.8131	1.8227	1.8321	1.8414	1.8639	1.8855	1.9063	1.9264	1.9648	2.0010	2.0353	2.0681	2.1296	2.1868	s	(278.45)
11.542	11.793	12.043	12.292	12.541	12 789	13.409	14.026	14.642	15.256	16.483	17.707	18.930	20.15	22.59	25.03	v	
1284.0	1293.7	1303.4	1313.1	1322.8	1332.5	1356.9	1381.4	1406.1	1430.9	1481.2	1532.2	1584.0	1636.8	1745.0	1856.9	h	49
1.7910	1.8010	1.8108	1.8204	1.8298	1.8391	1.8616	1.8832	1.9040	1.9241	1.9625	1.9987	2.0330	2.0658	2.1273	2.1845	s	(279.74)
11.309	11.555	11.800	12.044	12.288	12.532	13.139	13.744	14.348	14.950	16.152	17.352	18.550	19.747	22.14	24.53	v	
1283.9	1293.6	1303.3	1313.0	1322.7	1332.5	1356.9	1381.4	1406.1	1430.9	1481.1	1532.1	1584.0	1636.8	1745.0	1856.8	h	50
1.7887	1.7987	1.8085	1.8181	1.8275	1.8368	1.8593	1.8809	1.9017	1.9219	1.9602	1.9964	2.0308	2.0636	2.1251	2.1822	s	(281.01)
11.085	11.326	11.566	11.806	12.045	12.284	12.879	13.473	14.065	14.656	15.835	17.011	18.186	19.359	21.70	24.05	v	
1283.8	1293.5	1303.2	1312.9	1322.7	1332.4	1356.8	1381.3	1406.0	1430.9	1481.1	1532.1	1584.0	1636.7	1744.9	1856.8	h	51
1.7864	1.7964	1.8062	1.8159	1.8253	1.8346	1.8571	1.8787	1.8995	1.9197	1.9580	1.9942	2.0286	2.0614	2.1229	2.1801	s	(282.26)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 290°	300°	320°	340°	360°	380°	400°	420°	440°	460°	480°	500°	520°	540°
	v	0.017	8.208	8.293	8.423	8.680	8.932	9.181	9.427	9.671	9.914	10.154	10.394	10.632	10.869	11.106	11.342
52	h	252.6	1174.8	1178.4	1183.8	1194.3	1204.7	1214.8	1224.8	1234.8	1244.6	1254.5	1264.2	1274.0	1283.7	1293.4	1303.1
(283.49)	s	0.4144	1.6553	1.6601	1.6672	1.6809	1.6940	1.7066	1.7186	1.7303	1.7417	1.7527	1.7635	1.7739	1.7842	1.7942	1.8040
	v	0.017	8.062	8.131	8.259	8.511	8.759	9.004	9.246	9.485	9.723	9.960	10.195	10.429	10.662	10.894	11.126
53	h	253.9	1175.2	1178.1	1183.5	1194.1	1204.5	1214.6	1224.7	1234.6	1244.5	1254.3	1264.1	1273.9	1283.6	1293.3	1303.1
(284.70)	s	0.4161	1.6538	1.6577	1.6648	1.6786	1.6917	1.7043	1.7164	1.7281	1.7395	1.7505	1.7613	1.7718	1.7820	1.7920	1.8019
	v	0.017	7.922	7.974	8.100	8.348	8.592	8.833	9.071	9.306	9.540	9.772	10.103	10.233	10.462	10.690	10.917
54	h	255.1	1175.6	1177.8	1183.2	1193.9	1204.3	1214.4	1224.5	1234.5	1244.4	1254.2	1264.0	1273.8	1283.5	1293.3	1303.0
(285.90)	s	0.4177	1.6523	1.6553	1.6625	1.6763	1.6894	1.7021	1.7142	1.7259	1.7373	1.7483	1.7591	1.7696	1.7799	1.7899	1.7998
	v	0.017	7.787	7.823	7.947	8.192	8.432	8.668	8.902	9.134	9.364	9.592	9.819	10.044	10.269	10.493	10.717
55	h	256.3	1175.9	1177.5	1183.0	1193.6	1204.0	1214.3	1224.4	1234.3	1244.3	1254.1	1263.9	1273.7	1283.4	1293.2	1302.9
(287.07)	s	0.4193	1.6509	1.6530	1.6602	1.6740	1.6872	1.6999	1.7120	1.7238	1.7351	1.7462	1.7570	1.7675	1.7778	1.7878	1.7977
	v	0.017	7.656	7.678	7.800	8.040	8.277	8.509	8.739	8.967	9.193	9.418	9.641	9.863	10.084	10.304	10.523
56	h	257.5	1176.3	1177.2	1182.7	1193.4	1203.8	1214.1	1224.2	1234.2	1244.1	1254.0	1263.8	1273.6	1283.3	1293.1	1302.8
(288.23)	s	0.4209	1.6494	1.6507	1.6579	1.6718	1.6850	1.6977	1.7099	1.7217	1.7330	1.7441	1.7549	1.7654	1.7757	1.7858	1.7956
	v	0.017	7.529	7.537	7.658	7.895	8.127	8.356	8.583	8.807	9.029	9.250	9.469	9.687	9.904	10.121	10.337
57	h	258.7	1176.6	1176.9	1182.5	1193.2	1203.6	1213.9	1224.0	1234.1	1244.0	1253.9	1263.7	1273.5	1283.2	1293.0	1302.7
(289.37)	s	0.4225	1.6480	1.6484	1.6557	1.6696	1.6829	1.6956	1.7078	1.7196	1.7310	1.7421	1.7529	1.7634	1.7737	1.7838	1.7936
	v	0.017	7.407		7.520	7.754	7.983	8.208	8.431	8.652	8.870	9.087	9.303	9.518	9.732	9.945	10.157
58	h	259.8	1176.9		1182.2	1192.9	1203.4	1213.7	1223.9	1233.9	1243.9	1253.8	1263.6	1273.4	1283.1	1292.9	1302.7
(290.50)	s	0.4240	1.6466		1.6535	1.6675	1.6808	1.6935	1.7057	1.7175	1.7289	1.7400	1.7509	1.7614	1.7717	1.7818	1.7916
	v	0.017	7.289		7.387	7.618	7.843	8.065	8.285	8.502	8.717	8.931	9.143	9.354	9.564	9.774	9.983
59	h	261.0	1177.3		1181.9	1192.7	1203.2	1213.5	1223.7	1233.8	1243.7	1253.6	1263.5	1273.3	1283.1	1292.8	1302.6
(291.61)	s	0.4255	1.6452		1.6513	1.6554	1.6787	1.6914	1.7037	1.7155	1.7270	1.7381	1.7489	1.7595	1.7698	1.7798	1.7897
	v	0.017	7.175		7.259	7.486	7.708	7.927	8.143	8.357	8.569	8.779	8.988	9.196	9.403	9.609	9.814
60	h	262.1	1177.6		1181.6	1192.5	1203.0	1213.4	1223.6	1233.6	1243.6	1253.5	1263.4	1273.2	1283.0	1292.7	1302.5
(292.71)	s	0.4270	1.6438		1.6492	1.6633	1.6766	1.6894	1.7017	1.7135	1.7250	1.7361	1.7470	1.7575	1.7678	1.7779	1.7878
	v	0.017	7.064		7.135	7.359	7.578	7.794	8.006	8.217	8.426	8.633	8.838	9.043	9.247	9.449	9.652
61	h	263.2	1177.9		1181.4	1192.2	1202.8	1213.2	1223.4	1233.5	1243.5	1253.4	1263.3	1273.1	1282.9	1292.7	1302.4
(293.79)	s	0.4285	1.6425		1.6471	1.6612	1.6746	1.6874	1.6997	1.7116	1.7231	1.7342	1.7450	1.7556	1.7659	1.7760	1.7859
	v	0.017	6.957		7.015	7.236	7.452	7.664	7.874	8.081	8.287	8.491	8.693	8.895	9.095	9.295	9.494
62	h	264.3	1178.2		1181.1	1192.0	1202.6	1213.0	1223.2	1233.3	1243.3	1253.3	1263.1	1273.0	1282.8	1292.6	1302.3
(294.85)	s	0.4300	1.6412		1.6450	1.6592	1.6726	1.6854	1.6978	1.7097	1.7212	1.7323	1.7432	1.7538	1.7641	1.7741	1.7840
	v	0.017	6.853		6.899	7.116	7.329	7.539	7.746	7.950	8.151	8.353	8.553	8.751	8.949	9.146	9.342
63	h	265.4	1178.5		1180.8	1191.8	1202.4	1212.8	1223.1	1233.2	1243.2	1253.2	1263.0	1272.9	1282.7	1292.5	1302.3
(295.90)	s	0.4314	1.6399		1.6429	1.6572	1.6706	1.6835	1.6959	1.7078	1.7193	1.7305	1.7413	1.7519	1.7622	1.7723	1.7822
	v	0.017	6.752		6.786	7.001	7.211	7.418	7.621	7.823	8.022	8.220	8.417	8.613	8.807	9.001	9.194
64	h	266.4	1178.8		1180.5	1191.5	1202.2	1212.6	1222.9	1233.0	1243.1	1253.0	1262.9	1272.8	1282.6	1292.4	1302.2
(296.94)	s	0.4328	1.6387		1.6409	1.6552	1.6687	1.6816	1.6940	1.7059	1.7174	1.7286	1.7395	1.7501	1.7604	1.7705	1.7804
	v	0.017	6.655		6.676	6.889	7.096	7.300	7.501	7.700	7.896	8.091	8.285	8.478	8.670	8.861	9.051
65	h	267.5	1179.1		1180.3	1191.3	1202.0	1212.5	1222.7	1232.9	1242.9	1252.9	1262.8	1272.7	1282.5	1292.3	1302.1
(297.97)	s	0.4342	1.6374		1.6389	1.6532	1.6668	1.6797	1.6921	1.7040	1.7156	1.7268	1.7377	1.7483	1.7586	1.7687	1.7786
	v	0.017	6.560		6.571	6.780	6.985	7.186	7.384	7.580	7.774	7.966	8.157	8.347	8.536	8.724	8.912
66	h	268.5	1179.4		1180.0	1191.1	1201.8	1212.3	1222.6	1232.7	1242.8	1252.8	1262.7	1272.6	1282.4	1292.2	1302.0
(298.99)	s	0.4356	1.6362		1.6369	1.6513	1.6649	1.6779	1.6903	1.7022	1.7138	1.7250	1.7359	1.7465	1.7569	1.7670	1.7769
	v	0.017	6.468		6.468	6.675	6.877	7.075	7.271	7.464	7.655	7.845	8.034	8.221	8.407	8.592	8.777
67	h	269.6	1179.7		1179.7	1190.8	1201.6	1212.1	1222.4	1232.6	1242.7	1252.7	1262.6	1272.5	1282.3	1292.1	1301.9
(299.99)	s	0.4369	1.6350		1.6350	1.6494	1.6630	1.6760	1.6885	1.7004	1.7120	1.7232	1.7342	1.7448	1.7552	1.7653	1.7752
	v	0.017	6.378			6.572	6.772	6.968	7.161	7.352	7.540	7.727	7.913	8.098	8.281	8.464	8.646
68	h	270.6	1180.0			1190.6	1201.4	1211.9	1222.2	1232.4	1242.5	1252.5	1262.5	1272.4	1282.2	1292.0	1301.9
(300.98)	s	0.4383	1.6338			1.6475	1.6612	1.6742	1.6867	1.6987	1.7103	1.7215	1.7324	1.7431	1.7534	1.7636	1.7735
	v	0.017	6.291			6.473	6.670	6.864	7.054	7.242	7.428	7.613	7.796	7.978	8.160	8.340	8.519
69	h	271.6	1180.3			1190.3	1201.2	1211.7	1222.1	1232.3	1242.4	1252.4	1262.4	1272.3	1282.1	1291.9	1301.8
(301.96)	s	0.4396	1.6326			1.6457	1.6594	1.6724	1.6849	1.6969	1.7085	1.7198	1.7307	1.7414	1.7518	1.7619	1.7718

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
560°	580°	600°	650°	700°	750°	800°	850°	900°	950°	1000°	1050°	1100°	1200°	1400°	1600°		
11.577	11.812	12.046	12.630	13.212	13.793	14.373	14.951	15.529	16.107	16.685	17.260	17.836	18.987	21.29	23.58	v	
1312.9	1322.6	1332.3	1356.7	1381.3	1406.0	1430.8	1455.8	1481.1	1506.5	1532.1	1557.9	1584.0	1636.7	1744.9	1856.8	h	52
1.8137	1.8231	1.8324	1.8549	1.8765	1.8974	1.9175	1.9370	1.9559	1.9742	1.9921	2.0095	2.0264	2.0592	2.1208	2.1779	s	(283.49)
11.357	11.587	11.817	12.390	12.962	13.532	14.100	14.668	15.235	15.802	16.368	16.933	17.498	18.628	20.88	23.14	v	
1312.8	1322.5	1332.3	1356.7	1381.2	1405.9	1430.8	1455.8	1481.0	1506.4	1532.1	1557.9	1583.9	1636.7	1744.9	1856.8	h	53
1.8115	1.8210	1.8302	1.8528	1.8744	1.8952	1.9154	1.9349	1.9538	1.9721	1.9900	2.0074	2.0243	2.0571	2.1187	2.1758	s	(284.70)
11.144	11.371	11.596	12.159	12.720	13.280	13.838	14.395	14.952	15.508	16.064	16.619	17.174	18.282	20.50	22.71	v	
1312.7	1322.5	1332.2	1356.6	1381.2	1405.9	1430.7	1455.8	1481.0	1506.4	1532.0	1557.9	1583.9	1636.7	1744.9	1856.8	h	54
1.8094	1.8189	1.8281	1.8507	1.8723	1.8932	1.9133	1.9328	1.9517	1.9700	1.9879	2.0053	2.0223	2.0551	2.1166	2.1737	s	(285.90)
10.940	11.162	11.384	11.937	12.488	13.037	13.586	14.133	14.679	15.226	15.771	16.316	16.861	17.950	20.12	22.30	v	
1312.6	1322.4	1332.1	1356.6	1381.1	1405.8	1430.7	1455.7	1481.0	1506.4	1532.0	1557.9	1583.9	1636.7	1744.9	1856.8	h	55
1.8073	1.8168	1.8261	1.8486	1.8703	1.8911	1.9112	1.9307	1.9496	1.9680	1.9859	2.0033	2.0202	2.0530	2.1146	2.1717	s	(287.07)
10.742	10.961	11.179	11.722	12.263	12.803	13.342	13.879	14.416	14.953	15.489	16.024	16.559	17.629	19.764	21.90	v	
1312.6	1322.3	1332.1	1356.5	1381.1	1405.8	1430.7	1455.7	1480.9	1506.3	1532.0	1557.8	1583.9	1636.6	1744.9	1856.8	h	56
1.8053	1.8147	1.8240	1.8466	1.8682	1.8891	1.9092	1.9287	1.9476	1.9660	1.9839	2.0013	2.0182	2.0510	2.1126	2.1697	s	(288.23)
10.552	10.767	10.981	11.515	12.047	12.578	13.107	13.635	14.163	14.690	15.216	15.742	16.268	17.319	19.417	21.51	v	
1312.5	1322.2	1332.0	1356.5	1381.0	1405.7	1430.6	1455.7	1480.9	1506.3	1532.0	1557.8	1583.9	1636.6	1744.8	1856.8	h	57
1.8033	1.8127	1.8220	1.8446	1.8663	1.8871	1.9073	1.9268	1.9457	1.9640	1.9819	1.9993	2.0163	2.0491	2.1106	2.1678	s	(289.37)
10.368	10.580	10.790	11.315	11.838	12.360	12.880	13.399	13.918	14.436	14.953	15.470	15.987	17.020	19.082	21.14	v	
1312.4	1322.2	1331.9	1356.4	1381.0	1405.7	1430.6	1455.6	1480.9	1506.3	1531.9	1557.8	1583.8	1636.6	1744.8	1856.7	h	58
1.8013	1.8108	1.8201	1.8427	1.8643	1.8852	1.9053	1.9248	1.9437	1.9621	1.9800	1.9974	2.0143	2.0472	2.1087	2.1658	s	(290.50)
10.191	10.399	10.606	11.122	11.636	12.149	12.660	13.171	13.681	14.190	14.699	15.207	15.716	16.731	18.759	20.78	v	
1312.3	1322.1	1331.9	1356.3	1380.9	1405.7	1430.5	1455.6	1480.8	1506.3	1531.9	1557.7	1583.8	1636.6	1744.8	1856.7	h	59
1.7994	1.8088	1.8181	1.8407	1.8624	1.8833	1.9034	1.9229	1.9418	1.9602	1.9781	1.9955	2.0125	2.0453	2.1068	2.1640	s	(291.61)
10.019	10.223	10.427	10.935	11.441	11.945	12.449	12.951	13.452	13.953	14.454	14.954	15.453	16.451	18.446	20.44	v	
1312.3	1322.0	1331.8	1356.3	1380.9	1405.6	1430.5	1455.6	1480.8	1506.2	1531.9	1557.7	1583.8	1636.6	1744.8	1856.7	h	60
1.7975	1.8069	1.8162	1.8388	1.8605	1.8814	1.9015	1.9210	1.9400	1.9583	1.9762	1.9936	2.0106	2.0434	2.1049	2.1621	s	(292.71)
9.853	10.054	10.255	10.754	11.252	11.748	12.243	12.738	13.231	13.724	14.216	14.708	15.199	16.181	18.143	20.10	v	
1312.2	1322.0	1331.7	1356.2	1380.8	1405.6	1430.4	1455.5	1480.8	1506.2	1531.8	1557.7	1583.8	1636.5	1744.8	1856.7	h	61
1.7956	1.8051	1.8144	1.8370	1.8586	1.8795	1.8997	1.9192	1.9381	1.9565	1.9744	1.9918	2.0088	2.0416	2.1031	2.1603	s	(293.79)
9.692	9.890	10.088	10.580	11.070	11.558	12.045	12.531	13.017	13.502	13.986	14.470	14.954	15.920	17.850	19.778	v	
1312.1	1321.9	1331.7	1356.2	1380.8	1405.5	1430.4	1455.5	1480.7	1506.2	1531.8	1557.7	1583.7	1636.5	1744.8	1856.7	h	62
1.7937	1.8032	1.8125	1.8351	1.8568	1.8777	1.8979	1.9174	1.9363	1.9547	1.9726	1.9900	2.0070	2.0398	2.1013	2.1585	s	(294.85)
9.537	9.732	9.926	10.410	10.893	11.373	11.853	12.332	12.809	13.287	13.764	14.240	14.716	15.667	17.566	19.464	v	
1312.0	1321.8	1331.6	1356.1	1380.7	1405.5	1430.4	1455.4	1480.7	1506.1	1531.8	1557.6	1583.7	1636.5	1744.8	1856.7	h	63
1.7919	1.8014	1.8107	1.8333	1.8550	1.8759	1.8961	1.9156	1.9345	1.9529	1.9708	1.9882	2.0052	2.0380	2.0996	2.1567	s	(295.90)
9.386	9.578	9.770	10.246	10.721	11.195	11.667	12.138	12.608	13.078	13.548	14.017	14.485	15.422	17.292	19.159	v	
1312.0	1321.8	1331.5	1356.1	1380.7	1405.4	1430.3	1455.4	1480.7	1506.1	1531.8	1557.6	1583.7	1636.5	1744.7	1856.7	h	64
1.7901	1.7996	1.8090	1.8316	1.8533	1.8742	1.8943	1.9138	1.9328	1.9512	1.9690	1.9864	2.0034	2.0362	2.0978	2.1550	s	(296.94)
9.240	9.429	9.618	10.087	10.555	11.021	11.486	11.951	12.414	12.877	13.339	13.801	14.262	15.184	17.025	18.864	v	
1311.9	1321.7	1331.5	1356.0	1380.6	1405.4	1430.3	1455.4	1480.6	1506.1	1531.7	1557.6	1583.7	1636.4	1744.7	1856.7	h	65
1.7884	1.7979	1.8072	1.8298	1.8515	1.8724	1.8926	1.9121	1.9310	1.9494	1.9673	1.9847	2.0017	2.0345	2.0961	2.1533	s	(297.97)
9.099	9.285	9.471	9.933	10.394	10.853	11.311	11.769	12.225	12.681	13.136	13.591	14.045	14.953	16.767	18.578	v	
1311.8	1321.6	1331.4	1355.9	1380.6	1405.3	1430.2	1455.3	1480.6	1506.1	1531.7	1557.6	1583.6	1636.4	1744.7	1856.6	h	66
1.7866	1.7961	1.8055	1.8281	1.8498	1.8707	1.8909	1.9104	1.9294	1.9477	1.9656	1.9830	2.0000	2.0328	2.0944	2.1516	s	(298.99)
8.961	9.145	9.328	9.784	10.238	10.690	11.142	11.592	12.042	12.491	12.939	13.388	13.835	14.730	16.517	18.301	v	
1311.7	1321.5	1331.3	1355.9	1380.5	1405.3	1430.2	1455.3	1480.6	1506.0	1531.7	1557.5	1583.6	1636.4	1744.7	1856.6	h	67
1.7849	1.7944	1.8038	1.8264	1.8481	1.8690	1.8892	1.9087	1.9277	1.9461	1.9639	1.9814	1.9984	2.0312	2.0927	2.1499	s	(299.99)
8.828	9.009	9.189	9.639	10.086	10.532	10.977	11.421	11.864	12.307	12.749	13.190	13.631	14.513	16.273	18.032	v	
1311.7	1321.5	1331.3	1355.8	1380.5	1405.2	1430.2	1455.3	1480.5	1506.0	1531.6	1557.5	1583.6	1636.4	1744.7	1856.6	h	68
1.7832	1.7927	1.8021	1.8247	1.8464	1.8674	1.8876	1.9071	1.9260	1.9444	1.9623	1.9797	1.9967	2.0295	2.0911	2.1483	s	(300.98)
8.698	8.877	9.055	9.498	9.939	10.379	10.817	11.255	11.691	12.128	12.563	12.999	13.433	14.302	16.037	17.770	v	
1311.6	1321.4	1331.2	1355.8	1380.4	1405.2	1430.1	1455.2	1480.5	1506.0	1531.6	1557.5	1583.6	1636.4	1744.7	1856.6	h	69
1.7816	1.7911	1.8004	1.8231	1.8448	1.8657	1.8859	1.9055	1.9244	1.9428	1.9607	1.9781	1.9951	2.0279	2.0895	2.1467	s	(301.96)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 310°	320°	330°	340°	350°	360°	370°	380°	390°	400°	420°	440°	460°	480°
	v	0.017	6.206	6.277	6.376	6.474	6.571	6.667	6.762	6.857	6.950	7.044	7.136	7.320	7.502	7.683	7.863
70	h	272.6	1180.6	1184.5	1190.1	1195.6	1201.0	1206.3	1211.5	1216.7	1221.9	1227.0	1232.1	1242.3	1252.3	1262.2	1272.2
(302.92)	s	0.4409	1.6315	1.6367	1.6438	1.6508	1.6576	1.6642	1.6707	1.6770	1.6832	1.6892	1.6952	1.7068	1.7181	1.7291	1.7397
	v	0.017	6.124	6.184	6.283	6.379	6.475	6.570	6.664	6.757	6.850	6.942	7.033	7.214	7.394	7.573	7.750
71	h	273.6	1180.8	1184.3	1189.9	1195.3	1200.7	1206.1	1211.4	1216.6	1221.8	1226.9	1232.0	1242.1	1252.2	1262.1	1272.1
(303.88)	s	0.4422	1.6303	1.6348	1.6420	1.6490	1.6558	1.6624	1.6689	1.6753	1.6815	1.6875	1.6935	1.7052	1.7164	1.7274	1.7381
	v	0.018	6.044	6.094	6.191	6.287	6.382	6.475	6.568	6.660	6.752	6.843	6.933	7.112	7.289	7.465	7.640
72	h	274.6	1181.1	1184.0	1189.6	1195.1	1200.5	1205.9	1211.2	1216.4	1221.6	1226.7	1231.9	1242.0	1252.0	1262.0	1271.9
(304.83)	s	0.4435	1.6292	1.6330	1.6402	1.6472	1.6541	1.6607	1.6672	1.6735	1.6797	1.6859	1.6918	1.7035	1.7148	1.7258	1.7364
	v	0.018	5.966	6.007	6.103	6.197	6.291	6.383	6.475	6.566	6.656	6.746	6.835	7.012	7.187	7.361	7.534
73	h	275.5	1181.3	1183.8	1189.4	1194.9	1200.3	1205.7	1211.0	1216.2	1221.4	1226.6	1231.7	1241.9	1251.9	1261.9	1271.8
(305.76)	s	0.4447	1.6281	1.6312	1.6385	1.6455	1.6523	1.6590	1.6655	1.6719	1.6781	1.6842	1.6902	1.7019	1.7132	1.7242	1.7348
	v	0.018	5.890	5.921	6.016	6.110	6.202	6.294	6.384	6.474	6.563	6.652	6.740	6.915	7.088	7.259	7.430
74	h	276.5	1181.6	1183.5	1189.1	1194.7	1200.1	1205.5	1210.8	1216.0	1221.3	1226.4	1231.6	1241.7	1251.8	1261.8	1271.7
(306.68)	s	0.4460	1.6270	1.6294	1.6367	1.6438	1.6506	1.6573	1.6638	1.6702	1.6764	1.6826	1.6886	1.7003	1.7116	1.7226	1.7333
	v	0.018	5.816	5.838	5.932	6.025	6.116	6.207	6.296	6.385	6.473	6.561	6.648	6.820	6.991	7.161	7.329
75	h	277.4	1181.9	1183.2	1188.9	1194.4	1199.9	1205.3	1210.6	1215.9	1221.1	1226.3	1231.4	1241.6	1251.7	1261.7	1271.6
(307.60)	s	0.4472	1.6259	1.6277	1.6350	1.6421	1.6489	1.6556	1.6622	1.6686	1.6748	1.6809	1.6869	1.6987	1.7100	1.7210	1.7317
	v	0.018	5.743	5.757	5.850	5.942	6.032	6.122	6.210	6.298	6.385	6.472	6.558	6.728	6.897	7.065	7.231
76	h	278.4	1182.1	1183.0	1188.6	1194.2	1199.7	1205.1	1210.4	1215.7	1220.9	1226.1	1231.3	1241.5	1251.6	1261.6	1271.5
(308.50)	s	0.4484	1.6248	1.6260	1.6333	1.6404	1.6473	1.6540	1.6605	1.6669	1.6732	1.6793	1.6853	1.6971	1.7084	1.7194	1.7302
	v	0.018	5.673	5.679	5.770	5.861	5.951	6.039	6.127	6.214	6.300	6.385	6.470	6.638	6.805	6.971	7.135
77	h	279.3	1182.4	1182.7	1188.4	1194.0	1199.5	1204.9	1210.2	1215.5	1220.8	1225.9	1231.1	1241.3	1251.4	1261.5	1271.4
(309.40)	s	0.4496	1.6238	1.6242	1.6316	1.6387	1.6456	1.6523	1.6589	1.6653	1.6716	1.6777	1.6838	1.6955	1.7069	1.7179	1.7286
	v	0.018	5.604		5.693	5.782	5.871	5.958	6.045	6.131	6.216	6.301	6.385	6.551	6.716	6.880	7.042
78	h	280.2	1182.6		1188.1	1193.7	1199.2	1204.7	1210.0	1215.3	1220.6	1225.8	1231.0	1241.2	1251.3	1261.3	1271.3
(310.29)	s	0.4508	1.6228		1.6299	1.6370	1.6440	1.6507	1.6573	1.6637	1.6700	1.6762	1.6822	1.6940	1.7054	1.7164	1.7271
	v	0.018	5.537		5.617	5.706	5.793	5.880	5.966	6.051	6.135	6.218	6.301	6.466	6.629	6.790	6.951
79	h	281.1	1182.8		1187.9	1193.5	1199.0	1204.5	1209.8	1215.2	1220.4	1225.6	1230.8	1241.1	1251.2	1261.2	1271.2
(311.16)	s	0.4520	1.6217		1.6282	1.6354	1.6423	1.6491	1.6557	1.6622	1.6685	1.6746	1.6807	1.6924	1.7038	1.7149	1.7256
	v	0.018	5.472		5.543	5.631	5.718	5.803	5.888	5.972	6.055	6.138	6.220	6.383	6.544	6.704	6.862
80	h	282.0	1183.1		1187.6	1193.3	1198.8	1204.3	1209.7	1215.0	1220.3	1225.5	1230.7	1240.9	1251.1	1261.1	1271.1
(312.03)	s	0.4531	1.6207		1.6266	1.6338	1.6407	1.6475	1.6541	1.6606	1.6669	1.6731	1.6791	1.6909	1.7023	1.7134	1.7242
	v	0.018	5.408		5.471	5.558	5.644	5.728	5.812	5.896	5.978	6.060	6.141	6.302	6.461	6.619	6.776
81	h	282.9	1183.3		1187.4	1193.0	1198.6	1204.1	1209.5	1214.8	1220.1	1225.3	1230.5	1240.8	1250.9	1261.0	1271.0
(312.89)	s	0.4543	1.6197		1.6250	1.6322	1.6392	1.6460	1.6526	1.6591	1.6654	1.6716	1.6776	1.6895	1.7009	1.7119	1.7227
	v	0.018	5.346		5.401	5.487	5.572	5.656	5.739	5.821	5.903	5.984	6.064	6.223	6.380	6.537	6.691
82	h	283.8	1183.5		1187.1	1192.8	1198.4	1203.9	1209.3	1214.6	1219.9	1225.2	1230.3	1240.6	1250.8	1260.9	1270.9
(313.74)	s	0.4554	1.6187		1.6233	1.6306	1.6376	1.6444	1.6510	1.6575	1.6639	1.6701	1.6761	1.6880	1.6994	1.7105	1.7213
	v	0.018	5.285		5.332	5.417	5.502	5.585	5.667	5.748	5.829	5.909	5.988	6.146	6.302	6.456	6.609
83	h	284.7	1183.8		1186.9	1192.6	1198.2	1203.7	1209.1	1214.4	1219.7	1225.0	1230.2	1240.5	1250.7	1260.8	1270.8
(314.59)	s	0.4565	1.6177		1.6217	1.6290	1.6360	1.6428	1.6495	1.6560	1.6624	1.6686	1.6747	1.6865	1.6980	1.7091	1.7199
	v	0.018	5.226		5.265	5.349	5.433	5.515	5.597	5.677	5.757	5.836	5.915	6.071	6.225	6.377	6.529
84	h	285.5	1184.0		1186.6	1192.3	1197.9	1203.5	1208.9	1214.3	1219.6	1224.8	1230.0	1240.4	1250.6	1260.7	1270.7
(315.42)	s	0.4576	1.6168		1.6202	1.6274	1.6345	1.6413	1.6480	1.6545	1.6609	1.6671	1.6732	1.6851	1.6965	1.7076	1.7184
	v	0.018	5.168		5.200	5.283	5.366	5.447	5.528	5.608	5.687	5.765	5.843	5.997	6.150	6.301	6.450
85	h	286.4	1184.2		1186.4	1192.1	1197.7	1203.2	1208.7	1214.1	1219.4	1224.7	1229.9	1240.2	1250.4	1260.6	1270.6
(316.25)	s	0.4587	1.6158		1.6186	1.6259	1.6330	1.6398	1.6465	1.6530	1.6594	1.6657	1.6718	1.6837	1.6951	1.7062	1.7171
	v	0.018	5.111		5.136	5.219	5.300	5.381	5.461	5.540	5.618	5.696	5.773	5.925	6.076	6.225	6.374
86	h	287.2	1184.4		1186.1	1191.9	1197.5	1203.0	1208.5	1213.9	1219.2	1224.5	1229.7	1240.1	1250.3	1260.4	1270.5
(317.07)	s	0.4598	1.6149		1.6170	1.6243	1.6315	1.6383	1.6450	1.6516	1.6580	1 6642	1.6703	1.6823	1.6937	1.7049	1.7157

Temperature—Degrees Fahrenheit																	Abs. Press. Lb./Sq. In. (Sat. Temp.)
500°	520°	540°	560°	580°	600°	650°	700°	750°	800°	850°	900°	1000°	1200°	1400°	1600°		
8.041	8.219	8.396	8.573	8.749	8.924	9.361	9.796	10.230	10.662	11.093	11.524	12.383	14.097	15.808	17.516	v	
1282.0	1291.9	1301.7	1311.5	1321.3	1331.1	1355.7	1380.4	1405.2	1430.1	1455.2	1480.5	1531.6	1636.3	1744.6	1856.6	h	70
1.7501	1.7603	1.7702	1.7799	1.7894	1.7988	1.8215	1.8432	1.8641	1.8843	1.9039	1.9228	1.9591	2.0263	2.0879	2.1451	s	(302.92)
7.926	8.101	8.276	8.450	8.624	8.797	9.228	9.657	10.085	10.511	10.936	11.361	12.208	13.898	15.585	17.269	v	
1281.9	1291.8	1301.6	1311.4	1321.2	1331.1	1355.7	1380.3	1405.1	1430.0	1455.2	1480.4	1531.6	1636.3	1744.6	1856.6	h	71
1.7485	1.7586	1.7686	1.7783	1.7878	1.7972	1.8199	1.8416	1.8625	1.8827	1.9023	1.9212	1.9575	2.0247	2.0863	2.1435	s	(303.88)
7.814	7.987	8.160	8.331	8.503	8.674	9.098	9.522	9.944	10.364	10.783	11.202	12.038	13.705	15.368	17.029	v	
1281.8	1291.7	1301.5	1311.4	1321.2	1331.0	1355.6	1380.3	1405.1	1430.0	1455.1	1480.4	1531.5	1636.3	1744.6	1856.6	h	72
1.7469	1.7570	1.7670	1.7767	1.7862	1.7956	1.8183	1.8400	1.8610	1.8812	1.9007	1.9197	1.9559	2.0232	2.0848	2.1420	s	(304.83)
7.705	7.876	8.046	8.216	8.385	8.553	8.973	9.390	9.806	10.221	10.635	11.048	11.873	13.517	15.158	16.796	v	
1281.7	1291.6	1301.4	1311.3	1321.1	1330.9	1355.5	1380.2	1405.0	1430.0	1455.1	1480.4	1531.5	1636.3	1744.6	1856.6	h	73
1.7453	1.7554	1.7654	1.7751	1.7847	1.7940	1.8167	1.8385	1.8594	1.8796	1.8992	1.9181	1.9544	2.0217	2.0832	2.1404	s	(305.76)
7.599	7.768	7.936	8.103	8.270	8.436	8.850	9.262	9.673	10.082	10.490	10.898	11.712	13.334	14.952	16.569	v	
1281.6	1291.5	1301.4	1311.2	1321.0	1330.9	1355.5	1380.2	1405.0	1429.9	1455.0	1480.3	1531.5	1636.3	1744.6	1856.6	h	74
1.7437	1.7539	1.7638	1.7736	1.7831	1.7925	1.8152	1.8369	1.8579	1.8781	1.8977	1.9166	1.9529	2.0202	2.0817	2.1389	s	(306.68)
7.496	7.663	7.829	7.994	8.159	8.323	8.731	9.138	9.543	9.947	10.350	10.752	11.555	13.156	14.753	16.348	v	
1281.5	1291.4	1301.3	1311.1	1321.0	1330.8	1355.4	1380.1	1404.9	1429.9	1455.0	1480.3	1531.5	1636.2	1744.6	1856.5	h	75
1.7421	1.7523	1.7623	1.7720	1.7816	1.7910	1.8137	1.8354	1.8564	1.8766	1.8962	1.9151	1.9514	2.0187	2.0802	2.1374	s	(307.60)
7.396	7.560	7.724	7.887	8.050	8.212	8.615	9.017	9.417	9.815	10.213	10.610	11.403	12.982	14.558	16.132	v	
1281.4	1291.3	1301.2	1311.0	1320.9	1330.7	1355.4	1380.1	1404.9	1429.8	1455.0	1480.3	1531.4	1636.2	1744.5	1856.5	h	76
1.7406	1.7508	1.7608	1.7705	1.7801	1.7895	1.8122	1.8339	1.8549	1.8751	1.8947	1.9136	1.9499	2.0172	2.0788	2.1360	s	(308.50)
7.298	7.460	7.622	7.783	7.944	8.104	8.502	8.899	9.293	9.687	10.080	10.472	11.254	12.813	14.369	15.923	v	
1281.4	1291.2	1301.1	1311.0	1320.8	1330.7	1355.3	1380.0	1404.8	1429.8	1454.9	1480.2	1531.4	1636.2	1744.5	1856.5	h	77
1.7391	1.7493	1.7593	1.7690	1.7786	1.7880	1.8107	1.8325	1.8534	1.8736	1.8932	1.9122	1.9485	2.0157	2.0773	2.1345	s	(309.40)
7.203	7.363	7.523	7.682	7.841	7.999	8.392	8.784	9.173	9.562	9.950	10.337	11.109	12.649	14.185	15.718	v	
1281.3	1291.2	1301.0	1310.9	1320.7	1330.6	1355.3	1380.0	1404.8	1429.8	1454.9	1480.2	1531.4	1636.2	1744.5	1856.5	h	78
1.7376	1.7478	1.7578	1.7675	1.7771	1.7865	1.8092	1.8310	1.8520	1.8722	1.8918	1.9107	1.9470	2.0143	2.0759	2.1331	s	(310.29)
7.110	7.269	7.427	7.584	7.740	7.896	8.285	8.672	9.056	9.440	9.823	10.205	10.968	12.488	14.005	15.519	v	
1281.2	1291.1	1301.0	1310.8	1320.7	1330.5	1355.2	1379.9	1404.8	1429.7	1454.9	1480.2	1531.3	1636.2	1744.5	1856.5	h	79
1.7361	1.7463	1.7563	1.7661	1.7757	1.7850	1.8078	1.8296	1.8505	1.8708	1.8903	1.9093	1.9456	2.0129	2.0745	2.1317	s	(311.16)
7.020	7.176	7.332	7.488	7.642	7.797	8.180	8.562	8.942	9.322	9.700	10.077	10.830	12.332	13.830	15.325	v	
1281.1	1291.0	1300.9	1310.7	1320.6	1330.5	1355.1	1379.9	1404.7	1429.7	1454.8	1480.1	1531.3	1636.2	1744.5	1856.5	h	80
1.7346	1.7449	1.7549	1.7646	1.7742	1.7836	1.8063	1.8281	1.8491	1.8694	1.8889	1.9079	1.9442	2.0115	2.0731	2.1303	s	(312.03)
6.931	7.086	7.240	7.394	7.547	7.699	8.078	8.456	8.831	9.206	9.579	9.952	10.696	12.179	13.659	15.136	v	
1281.0	1290.9	1300.8	1310.7	1320.5	1330.4	1355.1	1379.8	1404.7	1429.6	1454.8	1480.1	1531.3	1636.1	1744.5	1856.5	h	81
1.7332	1.7434	1.7534	1.7632	1.7728	1.7822	1.8049	1.8267	1.8477	1.8680	1.8875	1.9065	1.9428	2.0101	2.0717	2.1289	s	(312.89)
6.845	6.998	7.151	7.302	7.453	7.604	7.979	8.352	8.723	9.093	9.462	9.830	10.565	12.029	13.492	14.951	v	
1280.9	1290.8	1300.7	1310.6	1320.5	1330.3	1355.0	1379.8	1404.6	1429.6	1454.8	1480.1	1531.3	1636.1	1744.4	1856.5	h	82
1.7318	1.7420	1.7520	1.7618	1.7714	1.7808	1.8036	1.8254	1.8464	1.8666	1.8862	1.9051	1.9415	2.0088	2.0704	2.1276	s	(313.74)
6.761	6.913	7.063	7.213	7.362	7.511	7.881	8.250	8.617	8.983	9.347	9.711	10.438	11.885	13.329	14.771	v	
1280.8	1290.7	1300.6	1310.5	1320.4	1330.3	1355.0	1379.7	1404.6	1429.6	1454.7	1480.0	1531.2	1636.1	1744.4	1856.4	h	83
1.7304	1.7406	1.7506	1.7604	1.7700	1.7794	1.8022	1.8240	1.8450	1.8652	1.8848	1.9038	1.9401	2.0074	2.0690	2.1262	s	(314.59)
6.679	6.829	6.978	7.126	7.274	7.421	7.787	8.151	8.513	8.875	9.235	9.595	10.313	11.743	13.170	14.595	v	
1280.7	1290.6	1300.5	1310.4	1320.3	1330.2	1354.9	1379.7	1404.5	1429.5	1454.7	1480.0	1531.2	1636.1	1744.4	1856.4	h	84
1.7290	1.7392	1.7492	1.7590	1.7686	1.7780	1.8008	1.8226	1.8436	1.8639	1.8835	1.9024	1.9388	2.0061	2.0677	2.1249	s	(315.42)
6.599	6.747	6.894	7.041	7.187	7.332	7.694	8.054	8.413	8.770	9.126	9.482	10.191	11.605	13.015	14.423	v	
1280.6	1290.5	1300.5	1310.4	1320.2	1330.1	1354.8	1379.6	1404.5	1429.5	1454.6	1480.0	1531.2	1636.0	1744.4	1856.4	h	85
1.7276	1.7378	1.7479	1.7577	1.7673	1.7767	1.7995	1.8213	1.8423	1.8626	1.8821	1.9011	1.9375	2.0048	2.0664	2.1236	s	(316.25)
6.521	6.667	6.813	6.958	7.102	7.246	7.604	7.960	8.314	8.667	9.019	9.371	10.072	11.470	12.863	14.255	v	
1280.5	1290.4	1300.4	1310.3	1320.2	1330.1	1354.8	1379.6	1404.4	1429.4	1454.6	1479.9	1531.2	1636.0	1744.4	1856.4	h	86
1.7262	1.7365	1.7465	1.7563	1.7659	1.7753	1.7981	1.8200	1.8410	1.8612	1.8808	1.8998	1.9362	2.0035	2.0651	2.1223	s	(317.07)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 320°	330°	340°	350°	360°	370°	380°	390°	400°	420°	440°	460°	480°	500°
	v	0.018	5.055	5.073	5.155	5.236	5.316	5.395	5.474	5.551	5.628	5.704	5.855	6.004	6.152	6.299	6.444
87	h	288.1	1184.6	1185.9	1191.6	1197.3	1202.8	1208.3	1213.7	1219.1	1224.3	1229.6	1240.0	1250.2	1260.3	1270.4	1280.4
(317.88)	s	0.4609	1.6139	1.6155	1.6228	1.6300	1.6369	1.6436	1.6501	1.6565	1.6628	1.6689	1.6809	1.6924	1.7035	1.7143	1.7249
	v	0.018	5.001	5.012	5.094	5.174	5.253	5.331	5.409	5.486	5.562	5.637	5.787	5.934	6.081	6.226	6.370
88	h	288.9	1184.8	1185.6	1191.4	1197.1	1202.6	1208.1	1213.5	1218.9	1224.2	1229.4	1239.8	1250.1	1260.2	1270.3	1280.3
(318.68)	s	0.4620	1.6130	1.6140	1.6214	1.6285	1.6354	1.6421	1.6487	1.6551	1.6614	1.6675	1.6795	1.6910	1.7021	1.7130	1.7235
	v	0.018	4.948	4.952	5.033	5.113	5.191	5.269	5.346	5.422	5.497	5.572	5.720	5.866	6.011	6.154	6.297
89	h	289.7	1185.1	1185.4	1191.1	1196.8	1202.4	1207.9	1213.4	1218.7	1224.0	1229.3	1239.7	1249.9	1260.1	1270.2	1280.2
(319.48)	s	0.4630	1.6121	1.6125	1.6199	1.6270	1.6339	1.6407	1.6473	1.6537	1.6600	1.6661	1.6781	1.6896	1.7008	1.7117	1.7222
	v	0.018	4.896		4.974	5.053	5.131	5.208	5.284	5.359	5.434	5.508	5.654	5.799	5.942	6.084	6.225
90	h	290.6	1185.3		1190.9	1196.6	1202.2	1207.7	1213.2	1218.6	1223.9	1229.1	1239.5	1249.8	1260.0	1270.1	1280.1
(320.27)	s	0.4641	1.6112		1.6184	1.6256	1.6325	1.6393	1.6459	1.6523	1.6586	1.6648	1.6767	1.6883	1.6995	1.7103	1.7209
	v	0.018	4.845		4.916	4.995	5.072	5.148	5.223	5.298	5.372	5.445	5.590	5.733	5.875	6.016	6.155
91	h	291.4	1185.5		1190.7	1196.4	1202.0	1207.5	1213.0	1218.4	1223.7	1229.0	1239.4	1249.7	1259.9	1270.0	1280.0
(321.06)	s	0.4651	1.6103		1.6169	1.6241	1.6311	1.6379	1.6445	1.6509	1.6572	1.6634	1.6754	1.6870	1.6982	1.7090	1.7196
	v	0.018	4.796		4.860	4.937	5.014	5.089	5.164	5.238	5.311	5.384	5.527	5.669	5.810	5.949	6.087
92	h	292.2	1185.7		1190.4	1196.2	1201.8	1207.3	1212.8	1218.2	1223.5	1228.8	1239.3	1249.6	1259.8	1269.9	1279.9
(321.83)	s	0.4661	1.6094		1.6155	1.6227	1.6297	1.6365	1.6431	1.6496	1.6559	1.6621	1.6741	1.6857	1.6969	1.7077	1.7183
	v	0.018	4.747		4.804	4.881	4.957	5.032	5.106	5.179	5.252	5.324	5.466	5.606	5.745	5.883	6.020
93	h	293.0	1185.9		1190.2	1195.9	1201.6	1207.1	1212.6	1218.0	1223.4	1228.7	1239.1	1249.4	1259.6	1269.8	1279.8
(322.60)	s	0.4672	1.6085		1.6140	1.6213	1.6283	1.6351	1.6417	1.6482	1.6545	1.6607	1.6728	1.6844	1.6956	1.7065	1.7171
	v	0.018	4.699		4.750	4.827	4.902	4.976	5.049	5.122	5.194	5.265	5.406	5.545	5.683	5.819	5.955
94	h	293.8	1186.1		1189.9	1195.7	1201.4	1206.9	1212.4	1217.8	1223.2	1228.5	1239.0	1249.3	1259.5	1269.7	1279.7
(323.36)	s	0.4682	1.6076		1.6126	1.6199	1.6269	1.6337	1.6404	1.6469	1.6532	1.6594	1.6715	1.6831	1.6943	1.7052	1.7158
	v	0.018	4.652		4.697	4.773	4.847	4.921	4.994	5.065	5.137	5.207	5.347	5.485	5.621	5.756	5.891
95	h	294.6	1186.2		1189.7	1195.5	1201.2	1206.7	1212.2	1217.7	1223.0	1228.3	1238.8	1249.2	1259.4	1269.5	1279.6
(324.12)	s	0.4692	1.6068		1.6112	1.6185	1.6255	1.6324	1.6390	1.6455	1.6519	1.6581	1.6702	1.6818	1.6930	1.7039	1.7146
	v	0.018	4.606		4.645	4.720	4.794	4.867	4.939	5.010	5.081	5.151	5.289	5.426	5.561	5.695	5.828
96	h	295.3	1186.4		1189.4	1195.3	1201.0	1206.5	1212.1	1217.5	1222.9	1228.2	1238.7	1249.1	1259.3	1269.4	1279.5
(324.87)	s	0.4702	1.6060		1.6098	1.6171	1.6241	1.6310	1.6377	1.6442	1.6506	1.6568	1.6689	1.6805	1.6918	1.7027	1.7133
	v	0.018	4.561		4.595	4.669	4.742	4.814	4.886	4.957	5.027	5.096	5.233	5.368	5.502	5.635	5.766
97	h	296.1	1186.6		1189.2	1195.0	1200.7	1206.3	1211.9	1217.3	1222.7	1228.0	1238.6	1248.9	1259.2	1269.3	1279.4
(325.61)	s	0.4711	1.6051		1.6084	1.6157	1.6228	1.6297	1.6364	1.6429	1.6493	1.6555	1.6676	1.6793	1.6906	1.7015	1.7121
	v	0.018	4.517		4.545	4.619	4.691	4.763	4.834	4.904	4.973	5.042	5.178	5.312	5.445	5.576	5.706
98	h	296.9	1186.8		1189.0	1194.8	1200.5	1206.1	1211.7	1217.2	1222.6	1227.9	1238.4	1248.8	1259.1	1269.2	1279.3
(326.35)	s	0.4721	1.6043		1.6070	1.6143	1.6215	1.6284	1.6351	1.6416	1.6480	1.6543	1.6664	1.6781	1.6893	1.7003	1.7109
	v	0.018	4.474		4.496	4.569	4.641	4.712	4.783	4.852	4.921	4.989	5.124	5.257	5.388	5.518	5.647
99	h	297.6	1187.0		1188.7	1194.6	1200.3	1205.9	1211.5	1217.0	1222.4	1227.7	1238.3	1248.7	1258.9	1269.1	1279.2
(327.08)	s	0.4731	1.6035		1.6056	1.6130	1.6201	1.6271	1.6338	1.6403	1.6467	1.6530	1.6651	1.6768	1.6881	1.6991	1.7097
	v	0.018	4.432		4.448	4.521	4.592	4.663	4.732	4.801	4.870	4.937	5.071	5.202	5.333	5.462	5.589
100	h	298.4	1187.2		1188.5	1194.3	1200.1	1205.7	1211.3	1216.8	1222.2	1227.6	1238.1	1248.6	1258.8	1269.0	1279.1
(327.81)	s	0.4740	1.6026		1.6043	1.6117	1.6188	1.6258	1.6325	1.6391	1.6455	1.6518	1.6639	1.6756	1.6869	1.6979	1.7085
	v	0.018	4.350		4.355	4.427	4.497	4.567	4.635	4.703	4.770	4.836	4.968	5.097	5.225	5.352	5.477
102	h	299.9	1187.5		1188.0	1193.9	1199.7	1205.3	1210.9	1216.4	1221.9	1227.3	1237.9	1248.3	1258.6	1268.8	1278.9
(329.25)	s	0.4759	1.6010		1.6016	1.6090	1.6162	1.6232	1.6300	1.6366	1.6430	1.6493	1.6615	1.6732	1.6845	1.6955	1.7062
	v	0.018	4.271			4.336	4.406	4.474	4.541	4.608	4.674	4.740	4.869	4.996	5.121	5.246	5.369
104	h	301.4	1187.9			1193.4	1199.2	1204.9	1210.6	1216.1	1221.6	1226.9	1237.6	1248.0	1258.4	1268.6	1278.7
(330.66)	s	0.4778	1.5994			1.6064	1.6136	1.6207	1.6275	1.6341	1.6405	1.6468	1.6591	1.6708	1.6822	1.6932	1.7039
	v	0.018	4.194			4.249	4.318	4.385	4.451	4.517	4.582	4.646	4.773	4.898	5.022	5.144	5.266
106	h	302.8	1188.2			1193.0	1198.8	1204.5	1210.2	1215.7	1221.2	1226.6	1237.3	1247.8	1258.1	1268.4	1278.6
(332.05)	s	0.4796	1.5978			1.6038	1.6111	1.6182	1.6250	1.6316	1.6381	1.6445	1.6567	1.6685	1.6799	1.6909	1.7016
	v	0.018	4.120			4.165	4.233	4.299	4.365	4.429	4.493	4.557	4.681	4.805	4.926	5.046	5.166
108	h	304.3	1188.6			1192.5	1198.4	1204.1	1209.8	1215.4	1220.9	1226.3	1237.0	1247.5	1257.9	1268.2	1278.4
(333.42)	s	0.4814	1.5963			1.6013	1.6086	1.6157	1.6226	1.6292	1.6357	1.6421	1.6544	1.6662	1.6776	1.6887	1.6994

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)
520°	540°	560°	580°	600°	650°	700°	750°	800°	850°	900°	950°	1000°	1200°	1400°	1600°	
6.589	6.733	6.876	7.019	7.162	7.515	7.867	8.218	8.567	8.915	9.263	9.610	9.956	11.338	12.715	14.091	v
1290.4	1300.3	1310.2	1320.1	1330.0	1354.7	1379.5	1404.4	1429.4	1454.6	1479.9	1505.4	1531.1	1636.0	1744.4	1856.4	h **87**
1.7351	1.7452	1.7550	1.7646	1.7740	1.7968	1.8187	1.8397	1.8600	1.8795	1.8985	1.9170	1.9349	2.0022	2.0638	2.1210	s (317.88)
6.513	6.655	6.797	6.938	7.079	7.429	7.777	8.124	8.469	8.813	9.157	9.500	9.842	11.208	12.571	13.931	v
1290.3	1300.2	1310.1	1320.0	1329.9	1354.7	1379.5	1404.4	1429.4	1454.5	1479.9	1505.4	1531.1	1636.0	1744.4	1856.4	h **88**
1.7338	1.7439	1.7537	1.7633	1.7727	1.7955	1.8174	1.8384	1.8587	1.8783	1.8973	1.9157	1.9336	2.0009	2.0626	2.1198	s (318.68)
6.438	6.579	6.719	6.859	6.998	7.345	7.689	8.032	8.373	8.714	9.053	9.393	9.731	11.082	12.429	13.774	v
1290.2	1300.1	1310.0	1320.0	1329.9	1354.6	1379.4	1404.3	1429.3	1454.5	1479.8	1505.4	1531.1	1636.0	1744.3	1856.4	h **89**
1.7325	1.7425	1.7524	1.7620	1.7714	1.7943	1.8161	1.8371	1.8574	1.8770	1.8960	1.9144	1.9324	1.9997	2.0613	2.1185	s (319.48)
6.365	6.505	6.644	6.782	6.920	7.262	7.603	7.942	8.279	8.616	8.952	9.288	9.623	10.959	12.291	13.621	v
1290.1	1300.0	1310.0	1319.9	1329.8	1354.6	1379.4	1404.3	1429.3	1454.5	1479.8	1505.3	1531.0	1635.9	1744.3	1856.4	h **90**
1.7312	1.7413	1.7511	1.7607	1.7702	1.7930	1.8149	1.8359	1.8562	1.8758	1.8948	1.9132	1.9311	1.9984	2.0601	2.1173	s (320.27)
6.294	6.432	6.569	6.706	6.843	7.181	7.518	7.854	8.188	8.521	8.853	9.185	9.517	10.838	12.156	13.471	v
1290.0	1300.0	1309.9	1319.8	1329.7	1354.5	1379.3	1404.2	1429.2	1454.4	1479.8	1505.3	1531.0	1635.9	1744.3	1856.3	h **91**
1.7299	1.7400	1.7498	1.7594	1.7689	1.7917	1.8136	1.8346	1.8549	1.8745	1.8935	1.9119	1.9299	1.9972	2.0588	2.1161	s (321.06)
6.224	6.361	6.497	6.632	6.767	7.102	7.436	7.767	8.098	8.428	8.757	9.085	9.413	10.720	12.023	13.325	v
1289.9	1299.9	1309.8	1319.7	1329.7	1354.4	1379.3	1404.2	1429.2	1454.4	1479.7	1505.3	1531.0	1635.9	1744.3	1856.3	h **92**
1.7286	1.7387	1.7485	1.7582	1.7676	1.7905	1.8124	1.8334	1.8537	1.8733	1.8923	1.9107	1.9286	1.9960	2.0576	2.1148	s (321.83)
6.156	6.291	6.426	6.560	6.693	7.025	7.355	7.683	8.010	8.337	8.662	8.987	9.311	10.604	11.894	13.181	v
1289.8	1299.8	1309.7	1319.7	1329.6	1354.4	1379.2	1404.1	1429.2	1454.4	1479.7	1505.2	1531.0	1635.9	1744.3	1856.3	h **93**
1.7274	1.7375	1.7473	1.7570	1.7664	1.7893	1.8112	1.8322	1.8525	1.8721	1.8911	1.9095	1.9274	1.9948	2.0564	2.1136	s (322.60)
6.089	6.223	6.356	6.489	6.621	6.949	7.276	7.601	7.925	8.247	8.569	8.891	9.212	10.491	11.767	13.041	v
1289.7	1299.7	1309.7	1319.6	1329.5	1354.3	1379.2	1404.1	1429.1	1454.3	1479.7	1505.2	1530.9	1635.9	1744.3	1856.3	h **94**
1.7261	1.7362	1.7461	1.7557	1.7652	1.7880	1.8099	1.8310	1.8513	1.8709	1.8899	1.9083	1.9263	1.9936	2.0552	2.1125	s (323.36)
6.024	6.156	6.288	6.419	6.550	6.875	7.199	7.520	7.841	8.160	8.479	8.797	9.114	10.381	11.643	12.903	v
1289.6	1299.6	1309.6	1319.5	1329.4	1354.3	1379.1	1404.0	1429.1	1454.3	1479.6	1505.2	1530.9	1635.8	1744.2	1856.3	h **95**
1.7249	1.7350	1.7448	1.7545	1.7640	1.7868	1.8087	1.8298	1.8501	1.8697	1.8887	1.9071	1.9251	1.9924	2.0541	2.1113	s (324.12)
5.960	6.091	6.222	6.352	6.481	6.803	7.123	7.441	7.758	8.074	8.390	8.705	9.019	10.272	11.522	12.769	v
1289.6	1299.6	1309.5	1319.4	1329.4	1354.2	1379.1	1404.0	1429.0	1454.3	1479.6	1505.2	1530.9	1635.8	1744.2	1856.3	h **96**
1.7237	1.7338	1.7436	1.7533	1.7628	1.7856	1.8075	1.8286	1.8489	1.8685	1.8875	1.9060	1.9239	1.9913	2.0529	2.1101	s (324.87)
5.897	6.027	6.156	6.285	6.413	6.732	7.049	7.364	7.678	7.991	8.303	8.614	8.925	10.166	11.403	12.637	v
1289.5	1299.5	1309.4	1319.4	1329.3	1354.1	1379.0	1403.9	1429.0	1454.2	1479.6	1505.1	1530.9	1635.8	1744.2	1856.3	h **97**
1.7225	1.7326	1.7424	1.7521	1.7616	1.7845	1.8064	1.8274	1.8477	1.8674	1.8864	1.9048	1.9228	1.9901	2.0518	2.1090	s (325.61)
5.836	5.964	6.092	6.220	6.347	6.662	6.976	7.288	7.599	7.909	8.218	8.526	8.834	10.062	11.286	12.508	v
1289.4	1299.4	1309.4	1319.3	1329.2	1354.1	1379.0	1403.9	1429.0	1454.2	1479.5	1505.1	1530.8	1635.8	1744.2	1856.3	h **98**
1.7213	1.7314	1.7412	1.7509	1.7604	1.7833	1.8052	1.8263	1.8466	1.8662	1.8852	1.9037	1.9216	1.9890	2.0506	2.1078	s (326.35)
5.775	5.903	6.030	6.156	6.282	6.594	6.905	7.214	7.521	7.828	8.134	8.440	8.744	9.960	11.172	12.381	v
1289.3	1299.3	1309.3	1319.2	1329.2	1354.0	1378.9	1403.9	1428.9	1454.1	1479.5	1505.1	1530.8	1635.8	1744.2	1856.2	h **99**
1.7201	1.7302	1.7401	1.7497	1.7592	1.7821	1.8041	1.8251	1.8454	1.8651	1.8841	1.9025	1.9205	1.9878	2.0495	2.1067	s (327.08)
5.717	5.843	5.968	6.093	6.218	6.527	6.835	7.141	7.446	7.749	8.052	8.355	8.656	9.860	11.060	12.258	v
1289.2	1299.2	1309.2	1319.2	1329.1	1354.0	1378.9	1403.8	1428.9	1454.1	1479.5	1505.0	1530.8	1635.7	1744.2	1856.2	h **100**
1.7189	1.7290	1.7389	1.7486	1.7581	1.7810	1.8029	1.8240	1.8443	1.8639	1.8829	1.9014	1.9193	1.9867	2.0484	2.1056	s (327.81)
5.602	5.726	5.849	5.972	6.094	6.398	6.699	6.999	7.298	7.596	7.893	8.190	8.486	9.666	10.843	12.017	v
1289.0	1299.1	1309.0	1319.0	1329.0	1353.9	1378.7	1403.7	1428.8	1454.0	1479.4	1505.0	1530.7	1635.7	1744.1	1856.2	h **102**
1.7166	1.7267	1.7366	1.7463	1.7558	1.7787	1.8007	1.8218	1.8421	1.8617	1.8807	1.8992	1.9171	1.9845	2.0462	2.1034	s (329.25)
5.492	5.614	5.735	5.855	5.975	6.273	6.569	6.864	7.157	7.449	7.741	8.032	8.322	9.480	10.634	11.786	v
1288.8	1298.9	1308.9	1318.9	1328.8	1353.7	1378.6	1403.6	1428.7	1454.0	1479.3	1504.9	1530.7	1635.7	1744.1	1856.2	h **104**
1.7143	1.7244	1.7343	1.7440	1.7535	1.7765	1.7985	1.8196	1.8399	1.8595	1.8785	1.8970	1.9150	1.9824	2.0440	2.1013	s (330.66)
5.386	5.505	5.624	5.743	5.861	6.153	6.444	6.733	7.021	7.308	7.594	7.879	8.164	9.301	10.433	11.563	v
1288.7	1298.7	1308.7	1318.7	1328.7	1353.6	1378.5	1403.5	1428.6	1453.9	1479.3	1504.9	1530.6	1635.6	1744.1	1856.2	h **106**
1.7121	1.7222	1.7321	1.7418	1.7514	1.7743	1.7963	1.8174	1.8377	1.8574	1.8764	1.8949	1.9128	1.9802	2.0419	2.0992	s (332.05)
5.284	5.401	5.518	5.634	5.750	6.037	6.323	6.607	6.890	7.171	7.452	7.733	8.012	9.128	10.239	11.349	v
1288.5	1298.5	1308.6	1318.6	1328.6	1353.5	1378.4	1403.4	1428.6	1453.8	1479.2	1504.8	1530.6	1635.6	1744.0	1856.1	h **108**
1.7099	1.7200	1.7300	1.7397	1.7492	1.7722	1.7942	1.8153	1.8356	1.8553	1.8743	1.8928	1.9108	1.9782	2.0398	2.0971	s (333.42)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 340°	350°	360°	370°	380°	390°	400°	420°	440°	460°	480°	500°	520°	540°
	v	0.018	4.049	4.085	4.151	4.216	4.281	4.345	4.408	4.470	4.593	4.714	4.834	4.952	5.069	5.186	5.301
110	h	305.7	1188.9	1192.0	1197.9	1203.7	1209.4	1215.0	1220.5	1226.0	1236.7	1247.3	1257.7	1268.0	1278.2	1288.3	1298.4
(334.77)	s	0.4832	1.5948	1.5988	1.6062	1.6133	1.6202	1.6269	1.6334	1.6398	1.6521	1.6640	1.6754	1.6865	1.6972	1.7077	1.7179
	v	0.018	3.981	4.007	4.072	4.137	4.200	4.263	4.325	4.387	4.508	4.627	4.745	4.861	4.976	5.091	5.204
112	h	307.1	1189.2	1191.5	1197.5	1203.3	1209.0	1214.7	1220.2	1225.7	1236.4	1247.0	1257.4	1267.7	1278.0	1288.1	1298.2
(336.11)	s	0.4849	1.5934	1.5963	1.6037	1.6109	1.6178	1.6245	1.6311	1.6375	1.6499	1.6618	1.6732	1.6843	1.6951	1.7056	1.7158
	v	0.018	3.914	3.931	3.996	4.060	4.122	4.184	4.246	4.306	4.425	4.543	4.659	4.773	4.887	4.999	5.111
114	h	308.4	1189.5	1191.1	1197.0	1202.9	1208.6	1214.3	1219.9	1225.4	1236.2	1246.8	1257.2	1267.5	1277.8	1287.9	1298.0
(337.42)	s	0.4866	1.5919	1.5939	1.6013	1.6085	1.6155	1.6223	1.6289	1.6353	1.6477	1.6596	1.6711	1.6822	1.6930	1.7035	1.7137
	v	0.018	3.850	3.859	3.923	3.985	4.047	4.108	4.169	4.228	4.346	4.462	4.576	4.688	4.800	4.911	5.021
116	h	309.8	1189.8	1190.6	1196.6	1202.5	1208.2	1213.9	1219.5	1225.0	1235.9	1246.5	1257.0	1267.3	1277.6	1287.7	1297.9
(338.72)	s	0.4883	1.5905	1.5915	1.5990	1.6062	1.6132	1.6200	1.6266	1.6331	1.6455	1.6575	1.6690	1.6801	1.6909	1.7014	1.7116
	v	0.018	3.788	3.788	3.852	3.914	3.975	4.035	4.094	4.153	4.269	4.383	4.495	4.606	4.716	4.826	4.934
118	h	311.1	1190.1	1190.1	1196.2	1202.1	1207.9	1213.6	1219.2	1224.7	1235.6	1246.2	1256.7	1267.1	1277.4	1287.6	1297.7
(339.99)	s	0.4900	1.5891	1.5891	1.5967	1.6039	1.6109	1.6178	1.6244	1.6309	1.6434	1.6554	1.6669	1.6781	1.6889	1.6994	1.7096
	v	0.018	3.728		3.783	3.844	3.904	3.964	4.023	4.081	4.195	4.307	4.418	4.527	4.636	4.743	4.849
120	h	312.4	1190.4		1195.7	1201.6	1207.5	1213.2	1218.8	1224.4	1235.3	1246.0	1256.5	1266.9	1277.2	1287.4	1297.5
(341.25)	s	0.4916	1.5878		1.5944	1.6017	1.6087	1.6156	1.6222	1.6287	1.6413	1.6533	1.6649	1.6760	1.6869	1.6974	1.7077
	v	0.018	3.670		3.716	3.777	3.836	3.895	3.953	4.010	4.123	4.234	4.343	4.451	4.557	4.663	4.768
122	h	313.8	1190.7		1195.2	1201.2	1207.1	1212.8	1218.5	1224.0	1235.0	1245.7	1256.3	1266.7	1277.0	1287.2	1297.4
(342.50)	s	0.4932	1.5865		1.5921	1.5994	1.6065	1.6134	1.6201	1.6266	1.6392	1.6512	1.6628	1.6740	1.6849	1.6954	1.7057
	v	0.018	3.614		3.652	3.712	3.771	3.829	3.886	3.942	4.054	4.163	4.270	4.377	4.482	4.586	4.689
124	h	315.0	1190.9		1194.8	1200.8	1206.7	1212.5	1218.1	1223.7	1234.7	1245.4	1256.0	1266.4	1276.8	1287.0	1297.2
(343.72)	s	0.4948	1.5851		1.5898	1.5972	1.6043	1.6113	1.6180	1.6245	1.6371	1.6492	1.6608	1.6721	1.6829	1.6935	1.7038
	v	0.018	3.560		3.590	3.649	3.707	3.764	3.821	3.876	3.986	4.094	4.200	4.305	4.408	4.511	4.613
126	h	316.3	1191.2		1194.3	1200.4	1206.3	1212.1	1217.8	1223.4	1234.4	1245.2	1255.8	1266.2	1276.6	1286.8	1297.0
(344.94)	s	0.4964	1.5838		1.5876	1.5950	1.6022	1.6092	1.6159	1.6225	1.6351	1.6472	1.6589	1.6701	1.6810	1.6916	1.7019
	v	0.018	3.507		3.529	3.588	3.645	3.702	3.758	3.813	3.921	4.027	4.132	4.235	4.337	4.439	4.539
128	h	317.6	1191.5		1193.9	1199.9	1205.9	1211.7	1217.4	1223.1	1234.1	1244.9	1255.5	1266.0	1276.4	1286.6	1296.8
(346.13)	s	0.4980	1.5825		1.5854	1.5929	1.6001	1.6071	1.6138	1.6204	1.6331	1.6453	1.6569	1.6682	1.6791	1.6897	1.7000
	v	0.018	3.455		3.471	3.529	3.585	3.641	3.696	3.751	3.858	3.963	4.066	4.168	4.269	4.369	4.468
130	h	318.8	1191.7		1193.4	1199.5	1205.5	1211.3	1217.1	1222.7	1233.8	1244.6	1255.3	1265.8	1276.2	1286.5	1296.7
(347.32)	s	0.4995	1.5812		1.5833	1.5908	1.5980	1.6050	1.6118	1.6184	1.6312	1.6433	1.6550	1.6663	1.6773	1.6879	1.6982
	v	0.018	3.405		3.414	3.471	3.527	3.583	3.637	3.691	3.796	3.900	4.002	4.103	4.202	4.300	4.398
132	h	320.0	1192.0		1192.9	1199.1	1205.1	1211.0	1216.7	1222.4	1233.5	1244.4	1255.1	1265.6	1276.0	1286.3	1296.5
(348.48)	s	0.5010	1.5800		1.5811	1.5886	1.5959	1.6030	1.6098	1.6164	1.6292	1.6414	1.6532	1.6645	1.6754	1.6860	1.6964
	v	0.018	3.357		3.359	3.416	3.471	3.526	3.579	3.633	3.737	3.839	3.940	4.039	4.137	4.234	4.331
134	h	321.2	1192.2		1192.5	1198.7	1204.7	1210.6	1216.4	1222.1	1233.2	1244.1	1254.8	1265.4	1275.8	1286.1	1296.3
(349.64)	s	0.5025	1.5787		1.5790	1.5866	1.5939	1.6009	1.6078	1.6145	1.6273	1.6395	1.6513	1.6626	1.6736	1.6842	1.6946
	v	0.018	3.310			3.362	3.416	3.470	3.523	3.576	3.679	3.780	3.880	3.978	4.074	4.170	4.265
136	h	322.4	1192.5			1198.2	1204.3	1210.2	1216.0	1221.7	1232.9	1243.8	1254.6	1265.1	1275.6	1285.9	1296.2
(350.78)	s	0.5040	1.5775			1.5845	1.5919	1.5989	1.6058	1.6125	1.6254	1.6377	1.6495	1.6608	1.6718	1.6825	1.6928
	v	0.018	3.264			3.309	3.363	3.417	3.469	3.521	3.623	3.723	3.821	3.918	4.013	4.108	4.202
138	h	323.6	1192.7			1197.8	1203.9	1209.8	1215.7	1221.4	1232.6	1243.6	1254.3	1264.9	1275.4	1285.7	1296.0
(351.91)	s	0.5054	1.5763			1.5825	1.5899	1.5970	1.6039	1.6106	1.6235	1.6358	1.6476	1.6590	1.6700	1.6807	1.6911
	v	0.018	3.220			3.258	3.312	3.365	3.417	3.468	3.569	3.667	3.764	3.860	3.954	4.047	4.140
140	h	324.8	1193.0			1197.3	1203.5	1209.4	1215.3	1221.1	1232.3	1243.3	1254.1	1264.7	1275.2	1285.5	1295.8
(353.02)	s	0.5069	1.5751			1.5804	1.5879	1.5950	1.6020	1.6087	1.6217	1.6340	1.6458	1.6573	1.6683	1.6790	1.6894
	v	0.018	3.177			3.208	3.262	3.314	3.365	3.416	3.516	3.613	3.709	3.803	3.896	3.989	4.080
142	h	326.0	1193.2			1196.9	1203.0	1209.1	1215.0	1220.7	1232.0	1243.0	1253.8	1264.5	1275.0	1285.3	1295.6
(354.12)	s	0.5083	1.5740			1.5784	1.5859	1.5931	1.6001	1.6068	1.6198	1.6322	1.6441	1.6555	1.6666	1.6773	1.6877

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
560°	580°	600°	620°	640°	660°	680°	700°	750°	800°	850°	900°	1000°	1200°	1400°	1600°		
5.416	5.530	5.644	5.757	5.870	5.983	6.095	6.207	6.486	6.763	7.040	7.316	7.866	8.961	10.053	11.142	v	
1308.4	1318.4	1328.4	1338.4	1348.4	1358.4	1368.4	1378.3	1403.4	1428.5	1453.7	1479.2	1530.5	1635.5	1744.0	1856.1	h	110
1.7278	1.7376	1.7471	1.7564	1.7656	1.7746	1.7834	1.7921	1.8132	1.8336	1.8532	1.8723	1.9087	1.9761	2.0378	2.0951	s	(334.77)
5.317	5.429	5.541	5.653	5.763	5.874	5.985	6.095	6.369	6.642	6.913	7.184	7.725	8.801	9.873	10.943	v	
1308.3	1318.3	1328.3	1338.3	1348.3	1358.3	1368.2	1378.2	1403.3	1428.4	1453.7	1479.1	1530.4	1635.5	1744.0	1856.1	h	112
1.7257	1.7355	1.7450	1.7543	1.7635	1.7725	1.7813	1.7900	1.8112	1.8315	1.8512	1.8702	1.9067	1.9741	2.0358	2.0931	s	(336.11)
5.222	5.332	5.442	5.552	5.661	5.770	5.878	5.986	6.256	6.524	6.791	7.058	7.589	8.646	9.699	10.751	v	
1308.1	1318.1	1328.2	1338.2	1348.1	1358.1	1368.1	1378.1	1403.2	1428.3	1453.6	1479.0	1530.4	1635.4	1744.0	1856.1	h	114
1.7237	1.7334	1.7429	1.7523	1.7615	1.7705	1.7793	1.7880	1.8092	1.8295	1.8492	1.8683	1.9047	1.9721	2.0338	2.0911	s	(337.42)
5.130	5.239	5.347	5.455	5.562	5.669	5.776	5.882	6.147	6.410	6.673	6.935	7.457	8.496	9.532	10.565	v	
1307.9	1318.0	1328.0	1338.0	1348.0	1358.0	1368.0	1378.0	1403.1	1428.2	1453.5	1479.0	1530.3	1635.4	1743.9	1856.0	h	116
1.7216	1.7314	1.7409	1.7503	1.7595	1.7685	1.7773	1.7860	1.8072	1.8276	1.8472	1.8663	1.9028	1.9702	2.0319	2.0892	s	(338.72)
5.041	5.148	5.255	5.361	5.466	5.571	5.676	5.781	6.041	6.301	6.559	6.817	7.330	8.352	9.370	10.386	v	
1307.8	1317.8	1327.9	1337.9	1347.9	1357.9	1367.9	1377.9	1403.0	1428.2	1453.5	1478.9	1530.3	1635.4	1743.9	1856.0	h	118
1.7196	1.7294	1.7389	1.7483	1.7575	1.7665	1.7754	1.7841	1.8052	1.8256	1.8453	1.8644	1.9008	1.9683	2.0300	2.0873	s	(339.99)
4.955	5.061	5.165	5.270	5.374	5.477	5.580	5.683	5.940	6.195	6.449	6.702	7.207	8.212	9.214	10.213	v	
1307.6	1317.7	1327.7	1337.8	1347.8	1357.8	1367.8	1377.8	1402.9	1428.1	1453.4	1478.8	1530.2	1635.3	1743.9	1856.0	h	120
1.7177	1.7274	1.7370	1.7464	1.7556	1.7646	1.7734	1.7822	1.8033	1.8237	1.8434	1.8625	1.8990	1.9664	2.0281	2.0854	s	(341.25)
4.872	4.976	5.079	5.182	5.284	5.386	5.488	5.589	5.841	6.092	6.342	6.592	7.088	8.077	9.062	10.045	v	
1307.5	1317.6	1327.6	1337.6	1347.7	1357.7	1367.7	1377.7	1402.8	1428.0	1453.3	1478.8	1530.2	1635.3	1743.8	1856.0	h	122
1.7157	1.7255	1.7351	1.7445	1.7537	1.7627	1.7716	1.7803	1.8015	1.8219	1.8416	1.8606	1.8971	1.9646	2.0263	2.0836	s	(342.50)
4.792	4.894	4.996	5.097	5.197	5.298	5.398	5.498	5.746	5.993	6.239	6.484	6.973	7.947	8.916	9.883	v	
1307.3	1317.4	1327.5	1337.5	1347.5	1357.6	1367.6	1377.6	1402.7	1427.9	1453.2	1478.7	1530.1	1635.2	1743.8	1855.9	h	124
1.7138	1.7236	1.7332	1.7426	1.7518	1.7608	1.7697	1.7784	1.7996	1.8200	1.8397	1.8588	1.8953	1.9628	2.0245	2.0818	s	(343.72)
4.714	4.815	4.915	5.014	5.113	5.212	5.311	5.409	5.654	5.897	6.139	6.381	6.862	7.820	8.774	9.726	v	
1307.2	1317.3	1327.3	1337.4	1347.4	1357.5	1367.5	1377.5	1402.6	1427.8	1453.2	1478.6	1530.1	1635.2	1743.8	1855.9	h	126
1.7119	1.7217	1.7313	1.7407	1.7500	1.7590	1.7679	1.7766	1.7978	1.8182	1.8379	1.8570	1.8935	1.9610	2.0227	2.0800	s	(344.94)
4.639	4.738	4.836	4.934	5.032	5.130	5.227	5.323	5.564	5.804	6.042	6.280	6.754	7.697	8.637	9.573	v	
1307.0	1317.1	1327.2	1337.2	1347.3	1357.3	1367.4	1377.4	1402.5	1427.7	1453.1	1478.6	1530.0	1635.2	1743.7	1855.9	h	128
1.7101	1.7199	1.7295	1.7389	1.7481	1.7572	1.7661	1.7748	1.7960	1.8164	1.8361	1.8552	1.8917	1.9592	2.0210	2.0783	s	(346.13)
4.566	4.663	4.761	4.857	4.953	5.049	5.145	5.240	5.478	5.714	5.949	6.183	6.650	7.579	8.503	9.426	v	
1306.8	1317.0	1327.0	1337.1	1347.2	1357.2	1367.3	1377.3	1402.5	1427.7	1453.0	1478.5	1529.9	1635.1	1743.7	1855.9	h	130
1.7083	1.7181	1.7277	1.7371	1.7463	1.7554	1.7643	1.7730	1.7942	1.8147	1.8344	1.8535	1.8900	1.9575	2.0193	2.0765	s	(347.32)
4.495	4.591	4.687	4.782	4.877	4.972	5.066	5.160	5.394	5.626	5.858	6.089	6.548	7.463	8.374	9.283	v	
1306.7	1316.8	1326.9	1337.0	1347.1	1357.1	1367.2	1377.2	1402.4	1427.6	1452.9	1478.4	1529.9	1635.1	1743.7	1855.8	h	132
1.7065	1.7163	1.7259	1.7353	1.7446	1.7536	1.7625	1.7713	1.7925	1.8129	1.8327	1.8518	1.8883	1.9558	2.0176	2.0748	s	(348.48)
4.426	4.521	4.616	4.709	4.803	4.896	4.989	5.082	5.312	5.541	5.770	5.997	6.450	7.351	8.249	9.144	v	
1306.5	1316.7	1326.8	1336.9	1346.9	1357.0	1367.0	1377.1	1402.3	1427.5	1452.9	1478.4	1529.8	1635.0	1743.6	1855.8	h	134
1.7047	1.7145	1.7241	1.7336	1.7428	1.7519	1.7608	1.7695	1.7908	1.8112	1.8310	1.8501	1.8866	1.9541	2.0159	2.0732	s	(349.64)
4.359	4.453	4.546	4.639	4.731	4.823	4.915	5.006	5.233	5.459	5.684	5.908	6.355	7.243	8.127	9.010	v	
1306.4	1316.5	1326.6	1336.7	1346.8	1356.9	1366.9	1377.0	1402.2	1427.4	1452.8	1478.3	1529.8	1635.0	1743.6	1855.8	h	136
1.7029	1.7128	1.7224	1.7319	1.7411	1.7502	1.7591	1.7679	1.7891	1.8095	1.8293	1.8484	1.8850	1.9525	2.0143	2.0715	s	(350.78)
4.295	4.387	4.479	4.570	4.661	4.752	4.842	4.932	5.156	5.379	5.601	5.822	6.262	7.138	8.009	8.879	v	
1306.2	1316.4	1326.5	1336.6	1346.7	1356.8	1366.8	1376.9	1402.1	1427.3	1452.7	1478.2	1529.7	1635.0	1743.6	1855.8	h	138
1.7012	1.7111	1.7207	1.7302	1.7394	1.7485	1.7574	1.7662	1.7874	1.8079	1.8277	1.8468	1.8833	1.9509	2.0126	2.0699	s	(351.91)
4.232	4.323	4.413	4.503	4.593	4.683	4.772	4.861	5.082	5.301	5.520	5.738	6.172	7.035	7.895	8.752	v	
1306.0	1316.2	1326.4	1336.5	1346.6	1356.6	1366.7	1376.8	1402.0	1427.3	1452.6	1478.2	1529.7	1634.9	1743.5	1855.7	h	140
1.6995	1.7094	1.7190	1.7285	1.7378	1.7468	1.7558	1.7645	1.7858	1.8063	1.8260	1.8451	1.8817	1.9493	2.0110	2.0683	s	(353.02)
4.171	4.261	4.350	4.439	4.527	4.616	4.704	4.791	5.009	5.226	5.441	5.656	6.085	6.936	7.783	8.628	v	
1305.9	1316.1	1326.2	1336.3	1346.4	1356.5	1366.6	1376.7	1401.9	1427.2	1452.6	1478.1	1529.6	1634.9	1743.5	1855.7	h	142
1.6978	1.7077	1.7174	1.7268	1.7361	1.7452	1.7541	1.7629	1.7842	1.8047	1.8244	1.8435	1.8801	1.9477	2.0095	2.0667	s	(354.12)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 360°	370°	380°	390°	400°	420°	440°	460°	430°	500°	520°	540°	560°	580°
	v	0.018	3.134	3.160	3.213	3.265	3.316	3.366	3.464	3.561	3.655	3.748	3.840	3.931	4.022	4.111	4.200
144	h	327.1	1193.4	1196.5	1202.6	1208.7	1214.6	1220.4	1231.7	1242.8	1253.6	1264.2	1274.8	1285.2	1295.5	1305.7	1315.9
(355.21)	s	0.5097	1.5728	1.5765	1.5840	1.5912	1.5982	1.6050	1.6180	1.6304	1.6423	1.6538	1.6649	1.6756	1.6860	1.6962	1.7061
	v	0.018	3.094	3.113	3.165	3.217	3.267	3.317	3.414	3.509	3.603	3.695	3.786	3.876	3.965	4.053	4.141
146	h	328.3	1193.6	1196.0	1202.2	1208.3	1214.2	1220.0	1231.4	1242.5	1253.3	1264.0	1274.5	1285.0	1295.3	1305.6	1315.8
(356.29)	s	0.5111	1.5716	1.5745	1.5820	1.5893	1.5963	1.6031	1.6162	1.6287	1.6406	1.6521	1.6632	1.6739	1.6844	1.6945	1.7044
	v	0.018	3.054	3.067	3.119	3.170	3.220	3.269	3.365	3.459	3.552	3.643	3.733	3.822	3.910	3.997	4.084
148	h	329.4	1193.9	1195.6	1201.8	1207.9	1213.9	1219.7	1231.1	1242.2	1253.1	1263.8	1274.3	1284.8	1295.1	1305.4	1315.6
(357.36)	s	0.5124	1.5705	1.5726	1.5801	1.5874	1.5945	1.6013	1.6144	1.6269	1.6389	1.6504	1.6615	1.6723	1.6827	1.6929	1.7028
	v	0.018	3.015	3.023	3.074	3.124	3.174	3.223	3.318	3.411	3.502	3.592	3.681	3.769	3.856	3.942	4.028
150	h	330.5	1194.1	1195.1	1201.4	1207.5	1213.5	1219.4	1230.8	1242.0	1252.9	1263.6	1274.1	1284.6	1295.0	1305.2	1315.5
(358.42)	s	0.5138	1.5694	1.5706	1.5782	1.5856	1.5927	1.5995	1.6127	1.6252	1.6372	1.6487	1.6599	1.6707	1.6811	1.6913	1.7012
	v	0.018	2.977	2.980	3.030	3.080	3.129	3.177	3.272	3.364	3.454	3.543	3.631	3.718	3.804	3.889	3.973
152	h	331.6	1194.3	1194.7	1200.9	1207.1	1213.1	1219.0	1230.5	1241.7	1252.6	1263.4	1273.9	1284.4	1294.8	1305.1	1315.3
(359.46)	s	0.5151	1.5683	1.5687	1.5764	1.5837	1.5908	1.5977	1.6110	1.6235	1.6355	1.6471	1.6582	1.6690	1.6795	1.6897	1.6997
	v	0.018	2.940		2.988	3.037	3.085	3.133	3.227	3.318	3.407	3.495	3.582	3.668	3.753	3.837	3.920
154	h	332.7	1194.5		1200.5	1206.7	1212.8	1218.7	1230.2	1241.4	1252.4	1263.1	1273.7	1284.2	1294.6	1304.9	1315.2
(360.49)	s	0.5165	1.5672		1.5745	1.5819	1.5891	1.5960	1.6093	1.6219	1.6339	1.6455	1.6566	1.6675	1.6780	1.6882	1.6981
	v	0.018	2.904		2.946	2.995	3.043	3.090	3.183	3.273	3.362	3.449	3.534	3.619	3.703	3.786	3.869
156	h	333.8	1194.7		1200.1	1206.3	1212.4	1218.3	1229.9	1241.1	1252.1	1262.9	1273.5	1284.0	1294.4	1304.8	1315.0
(361.52)	s	0.5178	1.5661		1.5727	1.5801	1.5873	1.5942	1.6076	1.6202	1.6323	1.6439	1.6551	1.6659	1.6764	1.6866	1.6966
	v	0.018	2.869		2.905	2.954	3.002	3.048	3.140	3.229	3.317	3.403	3.488	3.572	3.655	3.737	3.818
158	h	334.9	1194.9		1199.7	1205.9	1212.0	1218.0	1229.6	1240.9	1251.9	1262.7	1273.3	1283.8	1294.3	1304.6	1314.9
(362.53)	s	0.5191	1.5650		1.5709	1.5783	1.5855	1.5925	1.6059	1.6185	1.6306	1.6423	1.6535	1.6643	1.6749	1.6851	1.6951
	v	0.018	2.834		2.866	2.914	2.961	3.008	3.098	3.187	3.273	3.359	3.443	3.525	3.607	3.689	3.769
160	h	335.9	1195.1		1199.2	1205.5	1211.6	1217.6	1229.3	1240.6	1251.6	1262.4	1273.1	1283.7	1294.1	1304.4	1314.7
(363.53)	s	0.5204	1.5640		1.5690	1.5766	1.5838	1.5908	1.6042	1.6169	1.6291	1.6407	1.6519	1.6628	1.6733	1.6836	1.6936
	v	0.018	2.801		2.827	2.875	2.922	2.968	3.058	3.145	3.231	3.315	3.398	3.480	3.561	3.642	3.722
162	h	337.0	1195.3		1198.8	1205.1	1211.3	1217.3	1229.0	1240.3	1251.4	1262.2	1272.9	1283.5	1293.9	1304.3	1314.6
(364.53)	s	0.5216	1.5630		1.5672	1.5748	1.5821	1.5891	1.6025	1.6153	1.6275	1.6392	1.6504	1.6613	1.6718	1.6821	1.6921
	v	0.018	2.768		2.790	2.837	2.883	2.929	3.018	3.105	3.190	3.273	3.355	3.436	3.516	3.596	3.675
164	h	338.0	1195.5		1198.4	1204.7	1210.9	1216.9	1228.6	1240.0	1251.1	1262.0	1272.7	1283.3	1293.7	1304.1	1314.4
(365.51)	s	0.5229	1.5620		1.5655	1.5731	1.5804	1.5874	1.6009	1.6137	1.6259	1.6376	1.6489	1.6598	1.6704	1.6806	1.6906
	v	0.018	2.736		2.753	2.800	2.846	2.891	2.979	3.065	3.149	3.232	3.313	3.393	3.473	3.551	3.629
166	h	339.0	1195.7		1197.9	1204.3	1210.5	1216.6	1228.3	1239.7	1250.9	1261.8	1272.5	1283.1	1293.6	1303.9	1314.3
(366.48)	s	0.5241	1.5610		1.5637	1.5713	1.5787	1.5858	1.5993	1.6121	1.6244	1.6361	1.6474	1.6583	1.6689	1.6792	1.6892
	v	0.018	2.705		2.717	2.764	2.809	2.854	2.941	3.027	3.110	3.191	3.272	3.351	3.430	3.508	3.585
168	h	340.1	1195.8		1197.5	1203.9	1210.1	1216.2	1228.0	1239.5	1250.6	1261.5	1272.3	1282.9	1293.4	1303.8	1314.1
(367.45)	s	0.5254	1.5600		1.5620	1.5696	1.5770	1.5841	1.5977	1.6106	1.6228	1.6346	1.6459	1.6568	1.6674	1.6777	1.6878
	v	0.018	2.675		2.682	2.728	2.773	2.818	2.904	2.989	3.071	3.152	3.232	3.310	3.388	3.465	3.541
170	h	341.1	1196.0		1197.1	1203.5	1209.7	1215.8	1227.7	1239.2	1250.4	1261.3	1272.1	1282.7	1293.2	1303.6	1314.0
(368.41)	s	0.5266	1.5590		1.5603	1.5679	1.5753	1.5825	1.5961	1.6090	1.6213	1.6331	1.6444	1.6554	1.6660	1.6763	1.6864
	v	0.018	2.645		2.648	2.694	2.738	2.782	2.868	2.952	3.034	3.114	3.193	3.270	3.347	3.424	3.499
172	h	342.1	1196.2		1196.6	1203.1	1209.4	1215.5	1227.4	1238.9	1250.1	1261.1	1271.9	1282.5	1293.0	1303.5	1313.8
(369.35)	s	0.5278	1.5580		1.5585	1.5662	1.5737	1.5809	1.5945	1.6075	1.6198	1.6316	1.6430	1.6539	1.6646	1.6749	1.6850
	v	0.018	2.616			2.660	2.704	2.748	2.833	2.916	2.997	3.076	3.154	3.231	3.308	3.383	3.458
174	h	343.1	1196.4			1202.7	1209.0	1215.1	1227.1	1238.6	1249.9	1260.8	1271.6	1282.3	1292.9	1303.3	1313.7
(370.29)	s	0.5290	1.5570			1.5646	1.5720	1.5792	1.5930	1.6060	1.6183	1.6301	1.6415	1.6525	1.6632	1.6735	1.6836
	v	0.018	2.587			2.627	2.671	2.714	2.799	2.881	2.961	3.040	3.117	3.193	3.269	3.343	3.417
176	h	344.1	1196.5			1202.3	1208.6	1214.8	1226.8	1238.3	1249.6	1260.6	1271.4	1282.1	1292.7	1303.1	1313.5
(371.22)	s	0.5302	1.5561			1.5629	1.5704	1.5776	1.5914	1.6045	1.6168	1.6287	1.6401	1.6511	1.6618	1.6721	1.6822
	v	0.018	2.559			2.594	2.638	2.681	2.765	2.846	2.926	3.004	3.080	3.156	3.230	3.304	3.377
178	h	345.1	1196.7			1201.8	1208.2	1214.4	1226.4	1238.1	1249.3	1260.4	1271.2	1281.9	1292.5	1303.0	1313.4
(372.14)	s	0.5313	1.5551			1.5613	1.5688	1.5761	1.5899	1.6030	1.6154	1.6273	1.6387	1.6497	1.6604	1.6707	1.6808

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
600°	620°	640°	660°	680°	700°	750°	800°	850°	900°	950°	1000°	1100°	1200°	1400°	1600°		
4.288	4.376	4.463	4.550	4.637	4.724	4.939	5.152	5.365	5.577	5.789	6.000	6.420	6.839	7.675	8.508	v	
1326.1	1336.2	1346.3	1356.4	1366.5	1376.6	1401.8	1427.1	1452.5	1478.0	1503.7	1529.6	1581.8	1634.8	1743.5	1855.7	h	144
1.7157	1.7252	1.7345	1.7436	1.7525	1.7613	1.7826	1.8031	1.8228	1.8420	1.8605	1.8785	1.9132	1.9461	2.0079	2.0652	s	(355.21)
4.228	4.315	4.401	4.487	4.573	4.658	4.870	5.081	5.291	5.500	5.709	5.917	6.332	6.745	7.569	8.392	v	
1325.9	1336.1	1346.2	1356.3	1366.4	1376.5	1401.7	1427.0	1452.4	1478.0	1503.6	1529.5	1581.8	1634.8	1743.5	1855.7	h	146
1.7141	1.7236	1.7329	1.7420	1.7509	1.7597	1.7810	1.8015	1.8213	1.8404	1.8590	1.8770	1.9116	1.9446	2.0064	2.0637	s	(356.29)
4.170	4.255	4.340	4.425	4.510	4.594	4.803	5.012	5.219	5.425	5.631	5.836	6.246	6.653	7.467	8.278	v	
1325.8	1335.9	1346.1	1356.2	1366.3	1376.4	1401.6	1426.9	1452.4	1477.9	1503.6	1529.4	1581.7	1634.8	1743.4	1855.6	h	148
1.7125	1.7220	1.7313	1.7404	1.7493	1.7581	1.7794	1.7999	1.8197	1.8389	1.8574	1.8755	1.9101	1.9431	2.0049	2.0622	s	(357.36)
4.113	4.197	4.281	4.365	4.449	4.532	4.738	4.944	5.148	5.352	5.555	5.758	6.162	6.564	7.367	8.168	v	
1325.7	1335.8	1346.0	1356.1	1366.2	1376.3	1401.5	1426.9	1452.3	1477.8	1503.5	1529.4	1581.7	1634.7	1743.4	1855.6	h	150
1.7109	1.7204	1.7297	1.7389	1.7478	1.7566	1.7779	1.7984	1.8182	1.8374	1.8559	1.8740	1.9086	1.9416	2.0034	2.0607	s	(358.42)
4.057	4.141	4.224	4.306	4.389	4.471	4.675	4.878	5.080	5.281	5.482	5.682	6.080	6.478	7.270	8.060	v	
1325.5	1335.7	1345.8	1356.0	1366.1	1376.2	1401.4	1426.8	1452.2	1477.8	1503.5	1529.3	1581.6	1634.7	1743.4	1855.6	h	152
1.7094	1.7189	1.7282	1.7373	1.7463	1.7551	1.7764	1.7969	1.8167	1.8359	1.8544	1.8725	1.9071	1.9401	2.0019	2.0592	s	(359.46)
4.003	4.186	4.168	4.249	4.331	4.412	4.614	4.814	5.013	5.212	5.410	5.607	6.001	6.393	7.175	7.955	v	
1325.4	1335.6	1345.7	1355.8	1365.9	1376.1	1401.4	1426.7	1452.1	1477.7	1503.4	1529.3	1581.6	1634.6	1743.3	1855.6	h	154
1.7078	1.7173	1.7267	1.7358	1.7448	1.7536	1.7749	1.7954	1.8152	1.8344	1.8530	1.8710	1.9056	1.9386	2.0004	2.0577	s	(360.49)
3.951	4.032	4.113	4.194	4.274	4.354	4.554	4.752	4.948	5.145	5.340	5.535	5.924	6.311	7.083	7.853	v	
1325.2	1335.4	1345.6	1355.7	1365.8	1376.0	1401.3	1426.6	1452.1	1477.6	1503.3	1529.2	1581.5	1634.6	1743.3	1855.5	h	156
1.7063	1.7158	1.7252	1.7343	1.7433	1.7521	1.7734	1.7940	1.8138	1.8329	1.8515	1.8695	1.9042	1.9372	1.9990	2.0563	s	(361.52)
3.899	3.980	4.060	4.140	4.219	4.298	4.495	4.691	4.885	5.079	5.272	5.464	5.848	6.231	6.993	7.753	v	
1325.1	1335.3	1345.5	1355.6	1365.7	1375.9	1401.2	1426.5	1452.0	1477.6	1503.3	1529.2	1581.5	1634.6	1743.3	1855.5	h	158
1.7048	1.7143	1.7237	1.7328	1.7418	1.7506	1.7720	1.7925	1.8123	1.8315	1.8501	1.8681	1.9028	1.9358	1.9976	2.0549	s	(362.53)
3.849	3.929	4.008	4.087	4.166	4.244	4.438	4.631	4.823	5.015	5.205	5.396	5.775	6.152	6.906	7.656	v	
1325.0	1335.2	1345.3	1355.5	1365.6	1375.7	1401.1	1426.4	1451.9	1477.5	1503.2	1529.1	1581.4	1634.5	1743.2	1855.5	h	160
1.7033	1.7129	1.7222	1.7313	1.7403	1.7491	1.7705	1.7911	1.8109	1.8301	1.8487	1.8667	1.9014	1.9344	1.9962	2.0535	s	(363.53)
3.801	3.879	3.957	4.035	4.113	4.190	4.382	4.573	4.763	4.952	5.141	5.328	5.703	6.076	6.820	7.562	v	
1324.8	1335.0	1345.2	1355.4	1365.5	1375.6	1401.0	1426.4	1451.8	1477.4	1503.2	1529.1	1581.4	1634.5	1743.2	1855.5	h	162
1.7019	1.7114	1.7207	1.7299	1.7389	1.7477	1.7691	1.7897	1.8095	1.8287	1.8473	1.8653	1.9000	1.9330	1.9948	2.0521	s	(364.53)
3.753	3.831	3.908	3.985	4.062	4.138	4.328	4.517	4.704	4.891	5.077	5.263	5.633	6.002	6.737	7.469	v	
1324.7	1334.9	1345.1	1355.3	1365.4	1375.5	1400.9	1426.3	1451.8	1477.4	1503.1	1529.0	1581.3	1634.4	1743.2	1855.4	h	164
1.7004	1.7100	1.7193	1.7285	1.7375	1.7463	1.7677	1.7883	1.8081	1.8273	1.8459	1.8639	1.8986	1.9316	1.9934	2.0508	s	(365.51)
3.707	3.784	3.860	3.936	4.012	4.088	4.275	4.462	4.647	4.832	5.016	5.199	5.565	5.929	6.655	7.379	v	
1324.5	1334.8	1345.0	1355.1	1365.3	1375.4	1400.8	1426.2	1451.7	1477.3	1503.0	1529.0	1581.3	1634.4	1743.1	1855.4	h	166
1.6990	1.7085	1.7179	1.7271	1.7361	1.7449	1.7663	1.7869	1.8067	1.8259	1.8445	1.8625	1.8972	1.9302	1.9921	2.0494	s	(366.48)
3.661	3.737	3.813	3.888	3.963	4.038	4.223	4.408	4.591	4.774	4.956	5.137	5.498	5.858	6.576	7.291	v	
1324.4	1334.6	1344.8	1355.0	1365.2	1375.3	1400.7	1426.1	1451.6	1477.2	1503.0	1528.9	1581.3	1634.4	1743.1	1855.4	h	168
1.6976	1.7071	1.7165	1.7257	1.7347	1.7435	1.7649	1.7855	1.8053	1.8245	1.8431	1.8612	1.8959	1.9289	1.9907	2.0481	s	(367.45)
3.617	3.692	3.767	3.842	3.916	3.990	4.173	4.355	4.536	4.717	4.897	5.076	5.433	5.789	6.498	7.205	v	
1324.2	1334.5	1344.7	1354.9	1365.1	1375.2	1400.6	1426.0	1451.5	1477.2	1502.9	1528.8	1581.2	1634.3	1743.1	1855.4	h	170
1.6962	1.7057	1.7151	1.7243	1.7333	1.7421	1.7636	1.7842	1.8040	1.8232	1.8418	1.8599	1.8946	1.9276	1.9894	2.0468	s	(368.41)
3.574	3.648	3.722	3.796	3.869	3.942	4.123	4.304	4.483	4.662	4.839	5.016	5.370	5.721	6.422	7.121	v	
1324.1	1334.4	1344.6	1354.8	1365.0	1375.1	1400.5	1426.0	1451.5	1477.1	1502.9	1528.8	1581.2	1634.3	1743.0	1855.3	h	172
1.6948	1.7043	1.7137	1.7229	1.7319	1.7408	1.7622	1.7828	1.8027	1.8219	1.8405	1.8586	1.8933	1.9263	1.9881	2.0455	s	(369.35)
3.532	3.605	3.678	3.751	3.824	3.896	4.075	4.254	4.431	4.607	4.783	4.958	5.307	5.655	6.348	7.039	v	
1324.0	1334.2	1344.5	1354.7	1364.8	1375.0	1400.4	1425.9	1451.4	1477.0	1502.8	1528.7	1581.1	1634.2	1743.0	1855.3	h	174
1.6934	1.7030	1.7124	1.7216	1.7306	1.7394	1.7609	1.7815	1.8014	1.8206	1.8392	1.8573	1.8920	1.9250	1.9868	2.0442	s	(370.29)
3.490	3.563	3.636	3.708	3.780	3.851	4.028	4.205	4.380	4.554	4.728	4.901	5.247	5.591	6.276	6.959	v	
1323.8	1334.1	1344.3	1354.5	1364.7	1374.9	1400.3	1425.8	1451.3	1477.0	1502.7	1528.7	1581.1	1634.2	1743.0	1855.3	h	176
1.6920	1.7016	1.7110	1.7202	1.7292	1.7381	1.7596	1.7802	1.8001	1.8193	1.8379	1.8560	1.8907	1.9237	1.9856	2.0429	s	(371.22)
3.450	3.522	3.594	3.665	3.736	3.807	3.982	4.157	4.330	4.503	4.675	4.846	5.187	5.528	6.205	6.881	v	
1323.7	1334.0	1344.2	1354.4	1364.6	1374.8	1400.2	1425.7	1451.3	1476.9	1502.7	1528.6	1581.0	1634.2	1743.0	1855.3	h	178
1.6907	1.7003	1.7097	1.7189	1.7279	1.7368	1.7583	1.7789	1.7988	1.8180	1.8366	1.8547	1.8894	1.9224	1.9843	2.0416	s	(372.14)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 380°	390°	400°	420°	440°	460°	480°	500°	520°	540°	560°	580°	600°	620°
	v	0.018	2.532	2.563	2.606	2.649	2.732	2.813	2.891	2.969	3.044	3.119	3.193	3.266	3.339	3.411	3.482
180	h	346.0	1196.9	1201.4	1207.8	1214.0	1226.1	1237.8	1249.1	1260.2	1271.0	1281.7	1292.3	1302.8	1313.2	1323.5	1333.8
(373.06)	s	0.5325	1.5542	1.5596	1.5672	1.5745	1.5884	1.6015	1.6139	1.6258	1.6373	1.6483	1.6590	1.6694	1.6795	1.6894	1.6990
	v	0.018	2.505	2.532	2.575	2.617	2.700	2.780	2.858	2.934	3.009	3.084	3.157	3.229	3.301	3.372	3.443
182	h	347.0	1197.0	1201.0	1207.4	1213.7	1225.8	1237.5	1248.8	1259.9	1270.8	1281.5	1292.1	1302.6	1313.0	1323.4	1333.7
(373.96)	s	0.5336	1.5532	1.5580	1.5656	1.5729	1.5869	1.6000	1.6125	1.6244	1.6359	1.6470	1.6577	1.6681	1.6782	1.6880	1.6977
	v	0.018	2.479	2.501	2.544	2.586	2.668	2.748	2.825	2.901	2.975	3.049	3.121	3.193	3.264	3.334	3.404
184	h	348.0	1197.2	1200.6	1207.0	1213.3	1225.5	1237.2	1248.6	1259.7	1270.6	1281.4	1292.0	1302.5	1312.9	1323.3	1333.6
(374.86)	s	0.5348	1.5523	1.5564	1.5640	1.5714	1.5854	1.5986	1.6111	1.6230	1.6345	1.6456	1.6563	1.6667	1.6769	1.6867	1.6964
	v	0.018	2.454	2.472	2.514	2.556	2.637	2.716	2.793	2.868	2.942	3.015	3.086	3.157	3.228	3.297	3.367
186	h	348.9	1197.3	1200.2	1206.6	1212.9	1225.2	1236.9	1248.3	1259.5	1270.4	1281.2	1291.8	1302.3	1312.7	1323.1	1333.4
(375.75)	s	0.5359	1.5514	1.5548	1.5625	1.5699	1.5839	1.5971	1.6097	1.6217	1.6332	1.6443	1.6550	1.6654	1.6756	1.6854	1.6951
	v	0.018	2.429	2.443	2.485	2.527	2.607	2.685	2.761	2.836	2.909	2.981	3.052	3.123	3.192	3.261	3.330
188	h	349.9	1197.5	1199.7	1206.2	1212.6	1224.8	1236.6	1248.1	1259.2	1270.2	1281.0	1291.6	1302.1	1312.6	1323.0	1333.3
(376.64)	s	0.5370	1.5506	1.5532	1.5609	1.5683	1.5824	1.5957	1.6083	1.6203	1.6318	1.6429	1.6537	1.6641	1.6743	1.6842	1.6938
	v	0.018	2.404	2.414	2.456	2.498	2.577	2.655	2.730	2.804	2.877	2.948	3.019	3.089	3.157	3.226	3.294
190	h	350.8	1197.6	1199.3	1205.8	1212.2	1224.5	1236.3	1247.8	1259.0	1270.0	1280.8	1291.4	1302.0	1312.4	1322.8	1333.2
(377.51)	s	0.5381	1.5497	1.5517	1.5594	1.5668	1.5810	1.5943	1.6069	1.6189	1.6305	1.6416	1.6524	1.6628	1.6730	1.6829	1.6925
	v	0.018	2.380	2.387	2.428	2.469	2.548	2.625	2.700	2.773	2.845	2.916	2.986	3.055	3.123	3.191	3.258
192	h	351.7	1197.8	1198.9	1205.4	1211.8	1224.2	1236.0	1247.5	1258.8	1269.7	1280.6	1291.2	1301.8	1312.3	1322.7	1333.0
(378.38)	s	0.5392	1.5488	1.5501	1.5578	1.5653	1.5795	1.5929	1.6055	1.6176	1.6291	1.6403	1.6511	1.6615	1.6717	1.6816	1.6913
	v	0.018	2.356	2.359	2.401	2.441	2.520	2.596	2.671	2.743	2.815	2.885	2.954	3.022	3.090	3.157	3.224
194	h	352.6	1197.9	1198.4	1205.0	1211.5	1223.8	1235.8	1247.3	1258.5	1269.5	1280.4	1291.1	1301.6	1312.1	1322.5	1332.9
(379.24)	s	0.5403	1.5479	1.5485	1.5563	1.5638	1.5781	1.5915	1.6041	1.6162	1.6278	1.6390	1.6498	1.6603	1.6705	1.6804	1.6901
	v	0.018	2.333		2.374	2.414	2.492	2.568	2.642	2.714	2.784	2.854	2.923	2.990	3.058	3.124	3.190
196	h	353.6	1198.1		1204.6	1211.1	1223.5	1235.5	1247.0	1258.3	1269.3	1280.2	1290.9	1301.5	1312.0	1322.4	1332.8
(380.10)	s	0.5414	1.5470		1.5548	1.5623	1.5766	1.5901	1.6028	1.6149	1.6265	1.6377	1.6485	1.6590	1.6692	1.6791	1.6888
	v	0.018	2.310		2.347	2.387	2.465	2.540	2.613	2.685	2.755	2.824	2.892	2.959	3.026	3.091	3.157
198	h	354.5	1198.2		1204.2	1210.7	1223.2	1235.2	1246.8	1258.1	1269.1	1280.0	1290.7	1301.3	1311.8	1322.3	1332.6
(380.95)	s	0.5425	1.5462		1.5533	1.5609	1.5752	1.5887	1.6014	1.6136	1.6252	1.6365	1.6473	1.6578	1.6680	1.6779	1.6876
	v	0.018	2.288		2.321	2.361	2.438	2.513	2.585	2.656	2.726	2.794	2.862	2.928	2.994	3.060	3.124
200	h	355.4	1198.4		1203.8	1210.3	1222.9	1234.9	1246.5	1257.8	1268.9	1279.8	1290.5	1301.1	1311.7	1322.1	1332.5
(381.79)	s	0.5435	1.5453		1.5518	1.5594	1.5738	1.5873	1.6001	1.6123	1.6240	1.6352	1.6460	1.6566	1.6668	1.6767	1.6864
	v	0.018	2.266		2.296	2.335	2.412	2.486	2.558	2.628	2.697	2.765	2.832	2.898	2.963	3.028	3.092
202	h	356.2	1198.5		1203.4	1210.0	1222.5	1234.6	1246.2	1257.6	1268.7	1279.6	1290.4	1301.0	1311.5	1322.0	1332.4
(382.62)	s	0.5446	1.5445		1.5503	1.5580	1.5724	1.5860	1.5988	1.6110	1.6227	1.6339	1.6448	1.6553	1.6656	1.6755	1.6852
	v	0.018	2.245		2.271	2.310	2.386	2.460	2.531	2.601	2.670	2.737	2.803	2.868	2.933	2.998	3.061
204	h	357.1	1198.6		1203.0	1209.6	1222.2	1234.3	1246.0	1257.3	1268.5	1279.4	1290.2	1300.8	1311.3	1321.8	1332.2
(383.45)	s	0.5456	1.5436		1.5488	1.5565	1.5710	1.5846	1.5975	1.6097	1.6214	1.6327	1.6436	1.6541	1.6644	1.6743	1.6840
	v	0.018	2.224		2.247	2.286	2.361	2.434	2.505	2.574	2.642	2.709	2.775	2.839	2.904	2.967	3.031
206	h	358.0	1198.7		1202.6	1209.2	1221.9	1234.0	1245.7	1257.1	1268.3	1279.2	1290.0	1300.6	1311.2	1321.7	1332.1
(384.27)	s	0.5467	1.5428		1.5474	1.5551	1.5697	1.5833	1.5962	1.6084	1.6202	1.6315	1.6424	1.6529	1.6632	1.6732	1.6829
	v	0.018	2.203		2.223	2.261	2.336	2.409	2.479	2.548	2.615	2.682	2.747	2.811	2.875	2.938	3.001
208	h	358.9	1198.9		1202.2	1208.8	1221.5	1233.7	1245.4	1256.9	1268.0	1279.0	1289.8	1300.5	1311.0	1321.5	1331.9
(385.09)	s	0.5477	1.5420		1.5459	1.5537	1.5683	1.5820	1.5949	1.6072	1.6189	1.6303	1.6412	1.6517	1.6620	1.6720	1.6817
	v	0.018	2.183		2.199	2.238	2.312	2.384	2.454	2.522	2.589	2.655	2.720	2.783	2.847	2.909	2.971
210	h	359.8	1199.0		1201.8	1208.4	1221.2	1233.4	1245.2	1256.6	1267.8	1278.8	1289.6	1300.3	1310.9	1321.4	1331.8
(385.90)	s	0.5487	1.5412		1.5445	1.5523	1.5670	1.5807	1.5936	1.6059	1.6177	1.6291	1.6400	1.6506	1.6608	1.6709	1.6806
	v	0.018	2.163		2.176	2.214	2.288	2.360	2.429	2.497	2.563	2.628	2.693	2.756	2.819	2.881	2.942
212	h	360.6	1199.1		1201.4	1208.0	1220.9	1233.1	1244.9	1256.4	1267.6	1278.6	1289.4	1300.1	1310.7	1321.2	1331.7
(386.70)	s	0.5497	1.5404		1.5430	1.5508	1.5656	1.5793	1.5923	1.6047	1.6165	1.6279	1.6388	1.6494	1.6597	1.6697	1.6794

Temperature—Degrees Fahrenheit															Abs. Press. Lb./Sq. In. (Sat. Temp.)	
640°	660°	680°	700°	750°	800°	850°	900°	950°	1000°	1050°	1100°	1200°	1400°	1600°		
3.553	3.623	3.694	3.764	3.937	4.110	4.281	4.452	4.622	4.792	4.961	5.129	5.466	6.136	6.804	v	
1344.1	1354.3	1364.5	1374.7	1400.2	1425.6	1451.2	1476.8	1502.6	1528.6	1554.7	1581.0	1634.1	1742.9	1855.2	h	180
1.7084	1.7176	1.7266	1.7355	1.7570	1.7776	1.7975	1.8167	1.8354	1.8534	1.8710	1.8882	1.9212	1.9831	2.0404	s	(373.06)
3.513	3.583	3.653	3.722	3.893	4.064	4.234	4.403	4.571	4.739	4.906	5.073	5.406	6.069	6.729	v	
1344.0	1354.2	1364.4	1374.6	1400.1	1425.5	1451.1	1476.8	1502.6	1528.5	1554.6	1580.9	1634.1	1742.9	1855.2	h	182
1.7071	1.7163	1.7253	1.7342	1.7557	1.7763	1.7962	1.8155	1.8341	1.8522	1.8698	1.8869	1.9200	1.9818	2.0392	s	(373.96)
3.474	3.543	3.612	3.680	3.850	4.019	4.187	4.354	4.521	4.687	4.852	5.017	5.346	6.002	6.656	v	
1343.8	1354.1	1364.3	1374.5	1400.0	1425.5	1451.0	1476.7	1502.5	1528.5	1554.6	1580.9	1634.0	1742.9	1855.2	h	184
1.7058	1.7150	1.7241	1.7329	1.7544	1.7751	1.7950	1.8142	1.8329	1.8510	1.8686	1.8857	1.9187	1.9806	2.0380	s	(374.86)
3.436	3.504	3.572	3.640	3.808	3.976	4.142	4.307	4.472	4.636	4.800	4.963	5.289	5.938	6.584	v	
1343.7	1354.0	1364.2	1374.4	1399.9	1425.4	1451.0	1476.6	1502.4	1528.4	1554.5	1580.8	1634.0	1742.8	1855.2	h	186
1.7045	1.7137	1.7228	1.7317	1.7532	1.7739	1.7938	1.8130	1.8317	1.8497	1.8673	1.8845	1.9175	1.9794	2.0368	s	(375.75)
3.398	3.466	3.533	3.600	3.767	3.933	4.097	4.261	4.424	4.586	4.748	4.910	5.232	5.874	6.514	v	
1343.6	1353.8	1364.1	1374.3	1399.8	1425.3	1450.9	1476.6	1502.4	1528.3	1554.5	1580.8	1634.0	1742.8	1855.1	h	188
1.7033	1.7125	1.7215	1.7304	1.7520	1.7726	1.7925	1.8118	1.8304	1.8485	1.8661	1.8833	1.9163	1.9782	2.0356	s	(376.64)
3.361	3.429	3.495	3.562	3.727	3.891	4.053	4.215	4.376	4.537	4.698	4.858	5.177	5.812	6.446	v	
1343.5	1353.7	1363.9	1374.2	1399.7	1425.2	1450.8	1476.5	1502.3	1528.3	1554.4	1580.7	1633.9	1742.8	1855.1	h	190
1.7020	1.7112	1.7203	1.7292	1.7507	1.7714	1.7913	1.8106	1.8292	1.8473	1.8649	1.8821	1.9151	1.9770	2.0344	s	(377.51)
3.325	3.392	3.458	3.524	3.687	3.849	4.010	4.171	4.330	4.490	4.649	4.807	5.123	5.752	6.378	v	
1343.3	1353.6	1363.8	1374.1	1399.6	1425.1	1450.7	1476.4	1502.3	1528.2	1554.4	1580.7	1633.9	1742.7	1855.1	h	192
1.7008	1.7100	1.7191	1.7280	1.7495	1.7702	1.7901	1.8094	1.8281	1.8462	1.8638	1.8809	1.9140	1.9759	2.0332	s	(378.38)
3.290	3.356	3.422	3.487	3.648	3.809	3.968	4.127	4.285	4.443	4.600	4.757	5.069	5.692	6.312	v	
1343.2	1353.5	1363.7	1374.0	1399.5	1425.1	1450.7	1476.4	1502.2	1528.2	1554.3	1580.6	1633.8	1742.7	1855.1	h	194
1.6995	1.7088	1.7179	1.7268	1.7483	1.7690	1.7889	1.8082	1.8269	1.8450	1.8626	1.8797	1.9128	1.9747	2.0321	s	(379.24)
3.255	3.321	3.386	3.450	3.610	3.770	3.927	4.085	4.241	4.397	4.553	4.708	5.017	5.634	6.248	v	
1343.1	1353.4	1363.6	1373.9	1399.4	1425.0	1450.6	1476.3	1502.1	1528.1	1554.3	1580.6	1633.8	1742.7	1855.0	h	196
1.6983	1.7076	1.7167	1.7256	1.7471	1.7678	1.7878	1.8071	1.8257	1.8438	1.8614	1.8786	1.9117	1.9736	2.0310	s	(380.10)
3.222	3.286	3.351	3.415	3.573	3.731	3.887	4.043	4.198	4.352	4.506	4.660	4.967	5.577	6.185	v	
1342.9	1353.2	1363.5	1373.7	1399.3	1424.9	1450.5	1476.2	1502.1	1528.1	1554.2	1580.5	1633.8	1742.6	1855.0	h	198
1.6971	1.7064	1.7155	1.7244	1.7460	1.7667	1.7866	1.8059	1.8246	1.8427	1.8603	1.8775	1.9105	1.9724	2.0298	s	(380.95)
3.189	3.253	3.316	3.380	3.537	3.693	3.848	4.002	4.156	4.309	4.461	4.613	4.917	5.521	6.123	v	
1342.8	1353.1	1363.4	1373.6	1399.2	1424.8	1450.4	1476.2	1502.0	1528.0	1554.2	1580.5	1633.7	1742.6	1855.0	h	200
1.6959	1.7052	1.7143	1.7232	1.7448	1.7655	1.7855	1.8048	1.8234	1.8415	1.8592	1.8763	1.9094	1.9713	2.0287	s	(381.79)
3.156	3.220	3.283	3.346	3.501	3.656	3.809	3.962	4.114	4.266	4.417	4.567	4.868	5.466	6.062	v	
1342.7	1353.0	1363.3	1373.5	1399.1	1424.7	1450.4	1476.1	1502.0	1528.0	1554.1	1580.5	1633.7	1742.6	1855.0	h	202
1.6947	1.7040	1.7131	1.7220	1.7436	1.7644	1.7843	1.8036	1.8223	1.8404	1.8580	1.8752	1.9083	1.9702	2.0276	s	(382.62)
3.124	3.187	3.250	3.312	3.466	3.619	3.771	3.923	4.073	4.223	4.373	4.522	4.820	5.412	6.002	v	
1342.6	1352.9	1363.2	1373.4	1399.0	1424.6	1450.3	1476.0	1501.9	1527.9	1554.1	1580.4	1633.6	1742.5	1854.9	h	204
1.6935	1.7028	1.7120	1.7209	1.7425	1.7632	1.7832	1.8025	1.8212	1.8393	1.8569	1.8741	1.9072	1.9691	2.0265	s	(383.45)
3.093	3.155	3.218	3.279	3.432	3.584	3.734	3.884	4.033	4.182	4.330	4.478	4.773	5.359	5.944	v	
1342.4	1352.8	1363.1	1373.3	1399.0	1424.6	1450.2	1476.0	1501.8	1527.8	1554.0	1580.4	1633.6	1742.5	1854.9	h	206
1.6924	1.7017	1.7108	1.7197	1.7414	1.7621	1.7821	1.8014	1.8201	1.8382	1.8558	1.8730	1.9061	1.9680	2.0254	s	(384.27)
3.063	3.124	3.186	3.247	3.398	3.549	3.698	3.846	3.994	4.141	4.288	4.435	4.726	5.308	5.887	v	
1342.3	1352.6	1362.9	1373.2	1398.9	1424.5	1450.2	1475.9	1501.8	1527.8	1554.0	1580.3	1633.6	1742.5	1854.9	h	208
1.6912	1.7005	1.7097	1.7186	1.7402	1.7610	1.7810	1.8003	1.8190	1.8371	1.8547	1.8719	1.9050	1.9669	2.0243	s	(385.09)
3.033	3.094	3.155	3.215	3.365	3.514	3.662	3.809	3.956	4.102	4.247	4.392	4.681	5.257	5.830	v	
1342.2	1352.5	1362.8	1373.1	1398.8	1424.4	1450.1	1475.8	1501.7	1527.7	1553.9	1580.3	1633.5	1742.5	1854.9	h	210
1.6901	1.6994	1.7085	1.7175	1.7391	1.7599	1.7799	1.7992	1.8179	1.8360	1.8537	1.8708	1.9039	1.9659	2.0233	s	(385.90)
3.003	3.064	3.124	3.184	3.333	3.481	3.627	3.773	3.918	4.062	4.207	4.350	4.637	5.207	5.775	v	
1342.1	1352.4	1362.7	1373.0	1398.7	1424.3	1450.0	1475.8	1501.7	1527.7	1553.9	1580.2	1633.5	1742.4	1854.8	h	212
1.6890	1.6983	1.7074	1.7164	1.7380	1.7588	1.7788	1.7981	1.8168	1.8350	1.8526	1.8698	1.9029	1.9648	2.0222	s	(386.70)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 390°	400°	420°	440°	460°	480°	500°	520°	540°	560°	580°	600°	620°	640°
	v	0.018	2.144	2.153	2.191	2.265	2.336	2.405	2.472	2.538	2.603	2.666	2.729	2.791	2.853	2.914	2.974
214	h	361.5	1199.2	1200.9	1207.6	1220.5	1232.8	1244.6	1256.1	1267.4	1278.4	1289.3	1300.0	1310.6	1321.1	1331.5	1341.9
(387.50)	s	0.5507	1.5396	1.5416	1.5494	1.5642	1.5780	1.5911	1.6034	1.6153	1.6267	1.6376	1.6482	1.6585	1.6685	1.6783	1.6878
	v	0.018	2.125	2.131	2.169	2.242	2.313	2.381	2.448	2.513	2.577	2.640	2.703	2.764	2.825	2.886	2.946
216	h	362.3	1199.4	1200.5	1207.2	1220.2	1232.5	1244.4	1255.9	1267.2	1278.2	1289.1	1299.8	1310.4	1321.0	1331.4	1341.8
(388.29)	s	0.5517	1.5388	1.5402	1.5480	1.5629	1.5768	1.5898	1.6022	1.6141	1.6255	1.6365	1.6471	1.6574	1.6674	1.6772	1.6867
	v	0.018	2.106	2.109	2.147	2.220	2.290	2.358	2.424	2.489	2.552	2.615	2.677	2.738	2.798	2.858	2.918
218	h	363.2	1199.5	1200.1	1206.9	1219.8	1232.2	1244.1	1255.7	1266.9	1278.0	1288.9	1299.6	1310.3	1320.8	1331.3	1341.7
(389.08)	s	0.5527	1.5380	1.5388	1.5467	1.5616	1.5755	1.5886	1.6010	1.6129	1.6243	1.6353	1.6459	1.6562	1.6663	1.6761	1.6856
	v	0.019	2.087	2.087	2.125	2.198	2.267	2.335	2.400	2.465	2.528	2.590	2.652	2.712	2.772	2.831	2.891
220	h	364.0	1199.6	1199.7	1206.5	1219.5	1231.9	1243.8	1255.4	1266.7	1277.8	1288.7	1299.5	1310.1	1320.7	1331.1	1341.6
(389.86)	s	0.5537	1.5372	1.5373	1.5453	1.5603	1.5742	1.5874	1.5998	1.6117	1.6231	1.6342	1.6448	1.6551	1.6652	1.6750	1.6845
	v	0.019	2.069		2.104	2.176	2.245	2.312	2.377	2.441	2.504	2.566	2.627	2.687	2.746	2.805	2.864
222	h	364.8	1199.7		1206.1	1219.1	1231.6	1243.6	1255.2	1266.5	1277.6	1288.5	1299.3	1310.0	1320.5	1331.0	1341.4
(390.63)	s	0.5547	1.5365		1.5439	1.5590	1.5729	1.5861	1.5986	1.6105	1.6220	1.6330	1.6437	1.6540	1.6641	1.6739	1.6835
	v	0.019	2.051		2.083	2.154	2.223	2.290	2.355	2.418	2.480	2.542	2.602	2.662	2.721	2.779	2.838
224	h	365.7	1199.8		1205.7	1218.8	1231.3	1243.3	1254.9	1266.3	1277.4	1288.3	1299.1	1309.8	1320.4	1330.9	1341.3
(391.40)	s	0.5556	1.5357		1.5426	1.5577	1.5717	1.5849	1.5974	1.6094	1.6208	1.6319	1.6426	1.6529	1.6630	1.6728	1.6824
	v	0.019	2.033		2.062	2.133	2.202	2.268	2.333	2.396	2.457	2.518	2.578	2.637	2.696	2.754	2.812
226	h	366.5	1199.9		1205.3	1218.5	1231.0	1243.0	1254.7	1266.1	1277.2	1288.2	1299.0	1309.6	1320.2	1330.7	1341.2
(392.17)	s	0.5566	1.5349		1.5412	1.5564	1.5704	1.5837	1.5962	1.6082	1.6197	1.6308	1.6415	1.6518	1.6619	1.6717	1.6813
	v	0.019	2.016		2.042	2.113	2.181	2.247	2.311	2.373	2.434	2.495	2.554	2.613	2.671	2.729	2.786
228	h	367.3	1200.0		1204.9	1218.1	1230.7	1242.8	1254.5	1265.9	1277.0	1288.0	1298.8	1309.5	1320.1	1330.6	1341.0
(392.93)	s	0.5575	1.5342		1.5399	1.5551	1.5692	1.5825	1.5951	1.6071	1.6186	1.6297	1.6404	1.6507	1.6608	1.6706	1.6802
	v	0.0185	1.9992		2.022	2.093	2.160	2.226	2.289	2.351	2.412	2.472	2.531	2.589	2.647	2.704	2.761
230	h	368.1	1200.1		1204.5	1217.8	1230.4	1242.5	1254.2	1265.6	1276.8	1287.8	1298.6	1309.3	1319.9	1330.5	1340.9
(393.68)	s	0.5585	1.5334		1.5385	1.5538	1.5680	1.5813	1.5939	1.6059	1.6174	1.6286	1.6393	1.6497	1.6598	1.6696	1.6792
	v	0.0186	1.9825		2.003	2.073	2.140	2.205	2.268	2.330	2.390	2.450	2.508	2.566	2.623	2.680	2.736
232	h	368.9	1200.2		1204.1	1217.4	1230.1	1242.2	1254.0	1265.4	1276.6	1287.6	1298.5	1309.2	1319.8	1330.3	1340.8
(394.43)	s	0.5594	1.5327		1.5372	1.5525	1.5667	1.5801	1.5927	1.6048	1.6163	1.6275	1.6382	1.6486	1.6587	1.6685	1.6782
	v	0.0186	1.9661		1.9834	2.053	2.120	2.185	2.247	2.309	2.369	2.428	2.486	2.543	2.600	2.656	2.712
234	h	369.7	1200.3		1203.7	1217.1	1229.8	1241.9	1253.7	1265.2	1276.4	1287.4	1298.3	1309.0	1319.6	1330.2	1340.7
(395.17)	s	0.5603	1.5319		1.5359	1.5512	1.5655	1.5789	1.5916	1.6037	1.6152	1.6264	1.6371	1.6475	1.6577	1.6675	1.6771
	v	0.0186	1.9499		1.9645	2.034	2.100	2.165	2.227	2.288	2.348	2.406	2.464	2.521	2.577	2.633	2.688
236	h	370.5	1200.4		1203.3	1216.7	1229.5	1241.7	1253.5	1265.0	1276.2	1287.2	1298.1	1308.9	1319.5	1330.0	1340.5
(395.91)	s	0.5613	1.5312		1.5345	1.5500	1.5643	1.5778	1.5904	1.6025	1.6141	1.6253	1.6360	1.6465	1.6566	1.6665	1.6761
	v	0.0186	1.9340		1.9459	2.015	2.081	2.145	2.207	2.267	2.327	2.385	2.442	2.499	2.555	2.610	2.665
238	h	371.3	1200.5		1202.9	1216.4	1229.1	1241.4	1253.2	1264.7	1276.0	1287.1	1297.9	1308.7	1319.3	1329.9	1340.4
(396.64)	s	0.5622	1.5305		1.5332	1.5487	1.5631	1.5766	1.5893	1.6014	1.6130	1.6242	1.6350	1.6454	1.6556	1.6654	1.6751
	v	0.0186	1.9183		1.9276	1.9964	2.062	2.126	2.187	2.247	2.306	2.364	2.421	2.477	2.533	2.587	2.642
240	h	372.1	1200.6		1202.5	1216.0	1228.8	1241.1	1253.0	1264.5	1275.8	1286.9	1297.8	1308.5	1319.2	1329.8	1340.3
(397.37)	s	0.5631	1.5298		1.5319	1.5475	1.5619	1.5754	1.5882	1.6003	1.6120	1.6232	1.6339	1.6444	1.6546	1.6644	1.6741
	v	0.0186	1.9030		1.9096	1.9780	2.043	2.107	2.168	2.227	2.286	2.343	2.400	2.456	2.511	2.565	2.620
242	h	372.9	1200.7		1202.1	1215.7	1228.5	1240.8	1252.7	1264.3	1275.6	1286.7	1297.6	1308.4	1319.0	1329.6	1340.1
(398.10)	s	0.5640	1.5291		1.5306	1.5463	1.5607	1.5743	1.5871	1.5992	1.6109	1.6221	1.6329	1.6434	1.6535	1.6634	1.6731
	v	0.0186	1.8879		1.8919	1.9600	2.025	2.088	2.149	2.208	2.266	2.323	2.379	2.435	2.489	2.543	2.598
244	h	373.7	1200.8		1201.6	1215.3	1228.2	1240.6	1252.5	1264.1	1275.4	1286.5	1297.4	1308.2	1318.9	1329.5	1340.0
(398.82)	s	0.5649	1.5284		1.5293	1.5450	1.5595	1.5731	1.5859	1.5982	1.6098	1.6210	1.6319	1.6423	1.6525	1.6624	1.6721
	v	0.0186	1.8730		1.8745	1.9423	2.007	2.069	2.130	2.189	2.247	2.303	2.359	2.414	2.468	2.522	2.576
246	h	374.5	1200.9		1201.2	1214.9	1227.9	1240.3	1252.2	1263.8	1275.2	1286.3	1297.3	1308.1	1318.8	1329.4	1339.9
(399.53)	s	0.5658	1.5277		1.5280	1.5438	1.5584	1.5720	1.5848	1.5971	1.6088	1.6200	1.6308	1.6413	1.6515	1.6614	1.6711
	v	0.0186	1.8583			1.9249	1.9892	2.051	2.111	2.170	2.227	2.283	2.339	2.394	2.448	2.501	2.554
248	h	375.2	1201.0			1214.6	1227.6	1240.0	1252.0	1263.6	1275.0	1286.1	1297.1	1307.9	1318.6	1329.2	1339.8
(400.24)	s	0.5667	1.5270			1.5426	1.5572	1.5709	1.5837	1.5960	1.6077	1.6190	1.6298	1.6403	1.6505	1.6604	1.6701

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
660°	680°	700°	720°	740°	760°	780°	800°	850°	900°	950°	1000°	1100°	1200°	1400°	1600°		
3.034	3.094	3.154	3.213	3.272	3.331	3.389	3.448	3.593	3.737	3.881	4.024	4.309	4.593	5.158	5.721	v	
1352.3	1362.6	1372.9	1383.2	1393.4	1403.7	1414.0	1424.2	1449.9	1475.7	1501.6	1527.6	1580.2	1633.4	1742.4	1854.8	h	**214**
1.6972	1.7063	1.7153	1.7241	1.7327	1.7412	1.7495	1.7577	1.7777	1.7970	1.8157	1.8339	1.8687	1.9018	1.9638	2.0212	s	(387.50)
3.005	3.065	3.124	3.183	3.241	3.299	3.357	3.415	3.559	3.702	3.845	3.986	4.269	4.550	5.110	5.668	v	
1352.2	1362.5	1372.8	1383.1	1393.3	1403.6	1413.9	1424.1	1449.9	1475.6	1501.5	1527.6	1580.1	1633.4	1742.4	1854.8	h	**216**
1.6961	1.7052	1.7142	1.7230	1.7316	1.7401	1.7484	1.7567	1.7767	1.7960	1.8147	1.8328	1.8677	1.9008	1.9627	2.0201	s	(388.29)
2.977	3.036	3.094	3.153	3.211	3.268	3.326	3.383	3.526	3.668	3.809	3.950	4.230	4.508	5.063	5.616	v	
1352.0	1362.4	1372.7	1383.0	1393.2	1403.5	1413.8	1424.1	1449.8	1475.6	1501.5	1527.5	1580.1	1633.4	1742.3	1854.8	h	**218**
1.6950	1.7041	1.7131	1.7219	1.7305	1.7390	1.7474	1.7556	1.7756	1.7949	1.8136	1.8318	1.8666	1.8997	1.9617	2.0191	s	(389.08)
2.949	3.008	3.066	3.123	3.181	3.238	3.295	3.352	3.493	3.634	3.774	3.913	4.191	4.467	5.017	5.565	v	
1351.9	1362.3	1372.6	1382.9	1393.1	1403.4	1413.7	1424.0	1449.7	1475.5	1501.4	1527.5	1580.0	1633.3	1742.3	1854.7	h	**220**
1.6939	1.7030	1.7120	1.7208	1.7295	1.7380	1.7463	1.7545	1.7746	1.7939	1.8126	1.8308	1.8656	1.8987	1.9607	2.0181	s	(389.86)
2.922	2.980	3.037	3.094	3.151	3.208	3.265	3.321	3.461	3.601	3.739	3.878	4.153	4.427	4.972	5.515	v	
1351.8	1362.2	1372.5	1382.8	1393.0	1403.3	1413.6	1423.9	1449.6	1475.4	1501.4	1527.4	1580.0	1633.3	1742.3	1854.7	h	**222**
1.6928	1.7020	1.7110	1.7198	1.7284	1.7369	1.7453	1.7535	1.7735	1.7928	1.8116	1.8297	1.8646	1.8977	1.9597	2.0171	s	(390.63)
2.895	2.952	3.009	3.066	3.122	3.179	3.235	3.291	3.430	3.568	3.706	3.843	4.115	4.387	4.927	5.465	v	
1351.7	1362.0	1372.4	1382.7	1393.0	1403.2	1413.5	1423.8	1449.6	1475.4	1501.3	1527.3	1579.9	1633.2	1742.2	1854.7	h	**224**
1.6917	1.7009	1.7099	1.7187	1.7274	1.7359	1.7442	1.7524	1.7725	1.7918	1.8105	1.8287	1.8635	1.8967	1.9587	2.0161	s	(391.40)
2.869	2.925	2.982	3.038	3.094	3.150	3.206	3.261	3.399	3.536	3.673	3.808	4.079	4.348	4.883	5.417	v	
1351.6	1361.9	1372.3	1382.6	1392.9	1403.1	1413.4	1423.7	1449.5	1475.3	1501.2	1527.3	1579.9	1633.2	1742.2	1854.7	h	**226**
1.6907	1.6999	1.7088	1.7177	1.7263	1.7348	1.7432	1.7514	1.7715	1.7908	1.8095	1.8277	1.8625	1.8957	1.9577	2.0151	s	(392.17)
2.843	2.899	2.955	3.011	3.066	3.122	3.177	3.232	3.369	3.505	3.640	3.775	4.043	4.309	4.840	5.369	v	
1351.5	1361.8	1372.2	1382.5	1392.8	1403.1	1413.4	1423.7	1449.4	1475.2	1501.2	1527.2	1579.8	1633.1	1742.2	1854.6	h	**228**
1.6896	1.6988	1.7078	1.7166	1.7253	1.7338	1.7422	1.7504	1.7705	1.7898	1.8085	1.8267	1.8616	1.8947	1.9567	2.0141	s	(392.93)
2.817	2.873	2.929	2.984	3.039	3.094	3.149	3.203	3.339	3.474	3.608	3.741	4.007	4.272	4.798	5.322	v	
1351.3	1361.7	1372.0	1382.4	1392.7	1403.0	1413.3	1423.6	1449.3	1475.2	1501.1	1527.2	1579.8	1633.1	1742.1	1854.6	h	**230**
1.6886	1.6978	1.7068	1.7156	1.7243	1.7328	1.7412	1.7494	1.7695	1.7888	1.8075	1.8257	1.8606	1.8937	1.9557	2.0131	s	(393.68)
2.792	2.848	2.903	2.958	3.012	3.067	3.121	3.175	3.310	3.443	3.576	3.709	3.972	4.235	4.757	5.276	v	
1351.2	1361.6	1371.9	1382.3	1392.6	1402.9	1413.2	1423.5	1449.3	1475.1	1501.0	1527.1	1579.7	1633.1	1742.1	1854.6	h	**232**
1.6876	1.6967	1.7057	1.7146	1.7233	1.7318	1.7401	1.7484	1.7685	1.7878	1.8065	1.8247	1.8596	1.8927	1.9548	2.0122	s	(394.43)
2.768	2.823	2.878	2.932	2.986	3.040	3.094	3.148	3.281	3.414	3.545	3.677	3.938	4.198	4.716	5.231	v	
1351.1	1361.5	1371.8	1382.2	1392.5	1402.8	1413.1	1423.4	1449.2	1475.0	1501.0	1527.1	1579.7	1633.0	1742.1	1854.6	h	**234**
1.6865	1.6957	1.7047	1.7136	1.7223	1.7308	1.7391	1.7474	1.7675	1.7868	1.8056	1.8238	1.8586	1.8918	1.9538	2.0112	s	(395.17)
2.744	2.798	2.853	2.906	2.960	3.014	3.067	3.121	3.253	3.384	3.515	3.645	3.905	4.162	4.676	5.187	v	
1351.0	1361.4	1371.7	1382.1	1392.4	1402.7	1413.0	1423.3	1449.1	1475.0	1500.9	1527.0	1579.7	1633.0	1742.0	1854.5	h	**236**
1.6855	1.6947	1.7037	1.7126	1.7213	1.7298	1.7382	1.7464	1.7665	1.7858	1.8046	1.8228	1.8577	1.8908	1.9528	2.0103	s	(395.91)
2.720	2.774	2.828	2.881	2.935	2.988	3.041	3.094	3.225	3.355	3.485	3.614	3.871	4.127	4.636	5.143	v	
1350.9	1361.2	1371.6	1382.0	1392.3	1402.6	1412.9	1423.2	1449.0	1474.9	1500.9	1527.0	1579.6	1632.9	1742.0	1854.5	h	**238**
1.6845	1.6937	1.7027	1.7116	1.7203	1.7288	1.7372	1.7454	1.7655	1.7849	1.8036	1.8218	1.8567	1.8899	1.9519	2.0093	s	(396.64)
2.696	2.750	2.804	2.857	2.910	2.963	3.015	3.068	3.198	3.327	3.456	3.584	3.839	4.093	4.597	5.100	v	
1350.7	1361.1	1371.5	1381.9	1392.2	1402.5	1412.8	1423.2	1449.0	1474.8	1500.8	1526.9	1579.6	1632.9	1742.0	1854.5	h	**240**
1.6835	1.6927	1.7017	1.7106	1.7193	1.7278	1.7362	1.7444	1.7645	1.7839	1.8027	1.8209	1.8558	1.8889	1.9510	2.0084	s	(397.37)
2.673	2.727	2.780	2.833	2.885	2.938	2.990	3.042	3.171	3.299	3.427	3.554	3.807	4.059	4.559	5.058	v	
1350.6	1361.0	1371.4	1381.8	1392.1	1402.4	1412.7	1423.1	1448.9	1474.8	1500.7	1526.8	1579.5	1632.9	1742.0	1854.5	h	**242**
1.6825	1.6917	1.7008	1.7096	1.7183	1.7268	1.7352	1.7435	1.7636	1.7830	1.8017	1.8199	1.8548	1.8880	1.9500	2.0075	s	(398.10)
2.651	2.704	2.756	2.809	2.861	2.913	2.965	3.016	3.144	3.272	3.398	3.524	3.775	4.025	4.522	5.016	v	
1350.5	1360.9	1371.3	1381.7	1392.0	1402.3	1412.7	1423.0	1448.8	1474.7	1500.7	1526.8	1579.5	1632.8	1741.9	1854.4	h	**244**
1.6815	1.6907	1.6998	1.7086	1.7173	1.7259	1.7343	1.7425	1.7626	1.7820	1.8008	1.8190	1.8539	1.8871	1.9491	2.0066	s	(398.82)
2.629	2.681	2.733	2.785	2.837	2.889	2.940	2.991	3.118	3.245	3.370	3.495	3.744	3.992	4.485	4.975	v	
1350.4	1360.8	1371.2	1381.6	1391.9	1402.2	1412.6	1422.9	1448.7	1474.6	1500.6	1526.7	1579.4	1632.8	1741.9	1854.4	h	**246**
1.6805	1.6898	1.6988	1.7077	1.7164	1.7249	1.7333	1.7416	1.7617	1.7811	1.7999	1.8181	1.8530	1.8861	1.9482	2.0057	s	(399.53)
2.607	2.659	2.711	2.762	2.814	2.865	2.916	2.967	3.093	3.218	3.343	3.467	3.714	3.960	4.448	4.935	v	
1350.3	1360.7	1371.1	1381.5	1391.8	1402.2	1412.5	1422.8	1448.7	1474.6	1500.6	1526.7	1579.4	1632.7	1741.9	1854.4	h	**248**
1.6796	1.6888	1.6979	1.7067	1.7154	1.7240	1.7324	1.7407	1.7608	1.7802	1.7989	1.8172	1.8521	1.8852	1.9473	2.0048	s	(400.24)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 420°	440°	460°	480°	500°	520°	540°	560°	580°	600°	620°	640°	660°	680°
	v	0.0187	1.8438	1.9077	1.9717	2.033	2.093	2.151	2.208	2.264	2.319	2.374	2.427	2.480	2.533	2.585	2.637
250	h	376.0	1201.1	1214.2	1227.3	1239.7	1251.7	1263.4	1274.8	1285.9	1296.9	1307.7	1318.5	1329.1	1339.6	1350.1	1360.6
(400.95)	s	0.5675	1.5263	1.5414	1.5560	1.5697	1.5826	1.5949	1.6067	1.6179	1.6288	1.6393	1.6495	1.6595	1.6691	1.6786	1.6878
	v	0.0187	1.8086	1.8659	1.9292	1.9900	2.049	2.106	2.162	2.217	2.272	2.325	2.378	2.430	2.482	2.533	2.584
255	h	377.9	1201.3	1213.3	1226.5	1239.0	1251.1	1262.8	1274.3	1285.5	1296.5	1307.3	1318.1	1328.7	1339.3	1349.8	1360.3
(402.70)	s	0.5697	1.5246	1.5384	1.5531	1.5670	1.5800	1.5923	1.6041	1.6154	1.6263	1.6368	1.6471	1.6570	1.6667	1.6762	1.6855
	v	0.0187	1.7748	1.8257	1.8882	1.9483	2.006	2.063	2.118	2.172	2.226	2.278	2.330	2.381	2.432	2.482	2.532
260	h	379.8	1201.5	1212.4	1225.7	1238.3	1250.5	1262.3	1273.8	1285.0	1296.0	1306.9	1317.7	1328.4	1339.0	1349.5	1360.0
(404.42)	s	0.5719	1.5229	1.5354	1.5503	1.5642	1.5773	1.5897	1.6015	1.6129	1.6238	1.6344	1.6447	1.6547	1.6644	1.6739	1.6832
	v	0.0187	1.7422	1.7870	1.8488	1.9081	1.9654	2.021	2.076	2.129	2.181	2.233	2.284	2.334	2.384	2.434	2.483
265	h	381.6	1201.7	1211.5	1224.9	1237.6	1249.9	1261.7	1273.2	1284.5	1295.6	1306.5	1317.3	1328.0	1338.7	1349.2	1359.7
(406.11)	s	0.5740	1.5212	1.5324	1.5475	1.5615	1.5747	1.5871	1.5990	1.6104	1.6214	1.6320	1.6423	1.6523	1.6621	1.6716	1.6809
	v	0.0188	1.7107	1.7497	1.8108	1.8694	1.9260	1.9809	2.035	2.087	2.139	2.190	2.240	2.289	2.338	2.387	2.436
270	h	383.4	1201.9	1210.6	1224.1	1236.9	1249.2	1261.1	1272.7	1284.0	1295.2	1306.1	1317.0	1327.7	1338.3	1348.9	1359.4
(407.78)	s	0.5760	1.5196	1.5295	1.5447	1.5588	1.5721	1.5846	1.5965	1.6080	1.6190	1.6297	1.6400	1.6500	1.6598	1.6693	1.6786
	v	0.0188	1.6804	1.7137	1.7742	1.8320	1.8879	1.9421	1.9950	2.047	2.098	2.148	2.197	2.246	2.294	2.342	2.390
275	h	385.2	1202.1	1209.6	1223.3	1236.2	1248.6	1260.5	1272.2	1283.6	1294.7	1305.7	1316.6	1327.3	1338.0	1348.6	1359.1
(409.43)	s	0.5781	1.5180	1.5266	1.5420	1.5562	1.5695	1.5821	1.5941	1.6056	1.6167	1.6274	1.6377	1.6477	1.6575	1.6671	1.6764
	v	0.0188	1.6511	1.6789	1.7388	1.7960	1.8512	1.9047	1.9569	2.008	2.058	2.107	2.156	2.204	2.252	2.299	2.346
280	h	387.0	1202.3	1208.7	1222.4	1235.4	1247.9	1260.0	1271.7	1283.1	1294.3	1305.3	1316.2	1327.0	1337.7	1348.3	1358.9
(411.05)	s	0.5801	1.5164	1.5238	1.5392	1.5536	1.5670	1.5796	1.5917	1.6032	1.6143	1.6251	1.6354	1.6455	1.6553	1.6649	1.6742
	v	0.0188	1.6228	1.6454	1.7047	1.7613	1.8158	1.8686	1.9201	1.9704	2.020	2.068	2.116	2.164	2.211	2.257	2.303
285	h	388.7	1202.4	1207.7	1221.6	1234.7	1247.3	1259.4	1271.1	1282.6	1293.9	1304.9	1315.8	1326.6	1337.4	1348.0	1358.6
(412.65)	s	0.5821	1.5149	1.5209	1.5365	1.5510	1.5645	1.5772	1.5893	1.6009	1.6121	1.6228	1.6332	1.6433	1.6531	1.6627	1.6721
	v	0.0188	1.5954	1.6130	1.6717	1.7277	1.7816	1.8338	1.8846	1.9342	1.9829	2.031	2.078	2.125	2.171	2.217	2.262
290	h	390.5	1202.6	1206.8	1220.8	1234.0	1246.6	1258.8	1270.6	1282.1	1293.4	1304.5	1315.5	1326.3	1337.0	1347.7	1358.3
(414.23)	s	0.5841	1.5133	1.5181	1.5339	1.5484	1.5620	1.5748	1.5870	1.5986	1.6098	1.6206	1.6310	1.6411	1.6510	1.6606	1.6700
	v	0.0189	1.5689	1.5816	1.6398	1.6952	1.7485	1.8001	1.8502	1.8992	1.9472	1.9945	2.041	2.087	2.133	2.178	2.222
295	h	392.2	1202.7	1205.8	1219.9	1233.3	1246.0	1258.2	1270.1	1281.6	1293.0	1304.1	1315.1	1325.9	1336.7	1347.4	1358.0
(415.79)	s	0.5860	1.5118	1.5154	1.5312	1.5459	1.5596	1.5725	1.5847	1.5964	1.6076	1.6184	1.6289	1.6390	1.6489	1.6585	1.6679
	v	0.0189	1.5433	1.5513	1.6090	1.6638	1.7165	1.7675	1.8170	1.8654	1.9128	1.9594	2.005	2.051	2.095	2.140	2.184
300	h	393.8	1202.8	1204.8	1219.1	1232.5	1245.3	1257.6	1269.5	1281.1	1292.5	1303.7	1314.7	1325.6	1336.4	1347.1	1357.7
(417.33)	s	0.5879	1.5104	1.5126	1.5286	1.5434	1.5572	1.5701	1.5824	1.5941	1.6054	1.6163	1.6268	1.6369	1.6468	1.6565	1.6659
	v	0.0189	1.5184	1.5219	1.5791	1.6334	1.6856	1.7360	1.7849	1.8327	1.8794	1.9254	1.9707	2.015	2.060	2.103	2.147
305	h	395.4	1203.0	1203.8	1218.2	1231.8	1244.7	1257.0	1269.0	1280.7	1292.1	1303.3	1314.3	1325.2	1336.0	1346.8	1357.4
(418.85)	s	0.5898	1.5089	1.5099	1.5260	1.5409	1.5548	1.5678	1.5802	1.5919	1.6032	1.6141	1.6247	1.6349	1.6448	1.6544	1.6639
	v	0.0189	1.4944		1.5502	1.6040	1.6556	1.7054	1.7538	1.8010	1.8472	1.8925	1.9372	1.9813	2.025	2.068	2.111
310	h	397.1	1203.1		1217.4	1231.0	1244.0	1256.4	1268.5	1280.2	1291.6	1302.9	1313.9	1324.9	1335.7	1346.4	1357.1
(420.35)	s	0.5916	1.5075		1.5235	1.5385	1.5524	1.5655	1.5780	1.5898	1.6011	1.6120	1.6226	1.6328	1.6428	1.6524	1.6619
	v	0.0190	1.4711		1.5222	1.5755	1.6266	1.6759	1.7237	1.7703	1.8159	1.8607	1.9048	1.9483	1.9912	2.034	2.076
315	h	398.8	1203.2		1216.5	1230.3	1243.3	1255.8	1267.9	1279.7	1291.2	1302.5	1313.6	1324.5	1335.4	1346.1	1356.8
(421.83)	s	0.5934	1.5060		1.5209	1.5361	1.5501	1.5633	1.5758	1.5876	1.5990	1.6100	1.6206	1.6308	1.6408	1.6505	1.6599
	v	0.0190	1.4485		1.4950	1.5479	1.5985	1.6472	1.6945	1.7406	1.7856	1.8298	1.8734	1.9163	1.9586	2.001	2.042
320	h	400.4	1203.4		1215.6	1229.5	1242.6	1255.2	1267.4	1279.2	1290.7	1302.0	1313.2	1324.2	1335.0	1345.8	1356.5
(423.29)	s	0.5952	1.5046		1.5184	1.5337	1.5478	1.5611	1.5736	1.5855	1.5969	1.6079	1.6186	1.6288	1.6388	1.6485	1.6580
	v	0.0190	1.4266		1.4687	1.5211	1.5712	1.6194	1.6662	1.7118	1.7562	1.7999	1.8429	1.8852	1.9271	1.9685	2.009
325	h	402.0	1203.5		1214.8	1228.7	1241.9	1254.6	1266.8	1278.7	1290.3	1301.6	1312.8	1323.8	1334.7	1345.5	1356.2
(424.74)	s	0.5970	1.5033		1.5159	1.5313	1.5455	1.5588	1.5714	1.5834	1.5949	1.6059	1.6166	1.6269	1.6369	1.6466	1.6561
	v	0.0190	1.4053		1.4431	1.4951	1.5448	1.5925	1.6388	1.6838	1.7278	1.7709	1.8134	1.8552	1.8965	1.9373	1.9777
330	h	403.6	1203.6		1213.9	1228.0	1241.3	1254.0	1266.3	1278.2	1289.8	1301.2	1312.4	1323.5	1334.4	1345.2	1356.0
(426.16)	s	0.5988	1.5019		1.5134	1.5289	1.5432	1.5567	1.5693	1.5814	1.5929	1.6039	1.6146	1.6249	1.6350	1.6447	1.6542
	v	0.0191	1.3846		1.4182	1.4699	1.5191	1.5664	1.6121	1.6567	1.7001	1.7428	1.7847	1.8260	1.8667	1.9071	1.9470
335	h	405.1	1203.6		1213.0	1227.2	1240.6	1253.4	1265.7	1277.7	1289.4	1300.8	1312.0	1323.1	1334.0	1344.9	1355.7
(427.58)	s	0.6005	1.5005		1.5110	1.5266	1.5410	1.5545	1.5672	1.5793	1.5909	1.6020	1.6127	1.6230	1.6331	1.6428	1.6524

Temperature—Degrees Fahrenheit															Abs. Press. Lb./Sq. In. (Sat. Temp.)
700°	720°	740°	760°	780°	800°	850°	900°	950°	1000°	1050°	1100°	1200°	1400°	1600°	
2.688	2.740	2.791	2.841	2.892	2.942	3.068	3.192	3.316	3.439	3.562	3.684	3.928	4.413	4.896	v
1371.0	1381.4	1391.7	1402.1	1412.4	1422.7	1448.6	1474.5	1500.5	1526.6	1552.9	1579.3	1632.7	1741.8	1854.4	h **250**
1.6969	1.7058	1.7145	1.7230	1.7315	1.7397	1.7598	1.7793	1.7980	1.8162	1.8339	1.8512	1.8843	1.9464	2.0039	s (400.95)
2.634	2.684	2.734	2.784	2.834	2.884	3.006	3.128	3.250	3.371	3.491	3.611	3.850	4.326	4.799	v
1370.7	1381.1	1391.5	1401.8	1412.2	1422.5	1448.4	1474.3	1500.3	1526.5	1552.8	1579.2	1632.6	1741.8	1854.3	h **255**
1.6945	1.7034	1.7122	1.7207	1.7291	1.7374	1.7575	1.7770	1.7958	1.8140	1.8317	1.8489	1.8821	1.9442	2.0017	s (402.70)
2.582	2.631	2.681	2.729	2.778	2.827	2.947	3.067	3.187	3.305	3.423	3.541	3.776	4.242	4.707	v
1370.4	1380.8	1391.2	1401.6	1412.0	1422.3	1448.2	1474.2	1500.2	1526.3	1552.6	1579.1	1632.5	1741.7	1854.2	h **260**
1.6922	1.7011	1.7099	1.7185	1.7269	1.7352	1.7553	1.7748	1.7936	1.8118	1.8295	1.8467	1.8799	1.9420	1.9995	s (404.42)
2.532	2.580	2.629	2.677	2.725	2.772	2.891	3.009	3.126	3.242	3.358	3.474	3.704	4.162	4.618	v
1370.2	1380.6	1391.0	1401.4	1411.7	1422.1	1448.0	1474.0	1500.0	1526.2	1552.5	1579.0	1632.4	1741.6	1854.2	h **265**
1.6900	1.6989	1.7076	1.7162	1.7246	1.7329	1.7531	1.7726	1.7914	1.8096	1.8273	1.8446	1.8778	1.9399	1.9974	s (406.11)
2.484	2.531	2.579	2.626	2.673	2.720	2.836	2.952	3.067	3.181	3.295	3.409	3.635	4.085	4.532	v
1369.9	1380.3	1390.7	1401.1	1411.5	1421.9	1447.8	1473.8	1499.9	1526.1	1552.4	1578.8	1632.3	1741.5	1854.1	h **270**
1.6877	1.6967	1.7054	1.7140	1.7224	1.7308	1.7509	1.7704	1.7892	1.8075	1.8252	1.8425	1.8757	1.9378	1.9953	s (407.78)
2.437	2.484	2.530	2.577	2.623	2.669	2.784	2.897	3.010	3.123	3.235	3.346	3.568	4.010	4.449	v
1369.6	1380.1	1390.5	1400.9	1411.3	1421.7	1447.7	1473.7	1499.7	1525.9	1552.3	1578.7	1632.2	1741.4	1854.0	h **275**
1.6855	1.6945	1.7032	1.7118	1.7203	1.7286	1.7488	1.7683	1.7871	1.8054	1.8231	1.8404	1.8736	1.9357	1.9932	s (409.43)
2.392	2.438	2.484	2.530	2.575	2.621	2.733	2.845	2.956	3.066	3.176	3.286	3.504	3.938	4.370	v
1369.4	1379.8	1390.3	1400.7	1411.1	1421.5	1447.5	1473.5	1499.6	1525.8	1552.1	1578.6	1632.1	1741.4	1854.0	h **280**
1.6834	1.6923	1.7011	1.7097	1.7182	1.7265	1.7467	1.7662	1.7851	1.8033	1.8211	1.8383	1.8716	1.9337	1.9912	s (411.05)
2.349	2.394	2.439	2.484	2.529	2.574	2.684	2.794	2.903	3.012	3.120	3.228	3.442	3.869	4.293	v
1369.1	1379.6	1390.0	1400.4	1410.9	1421.3	1447.3	1473.3	1499.4	1525.6	1552.0	1578.5	1632.0	1741.3	1853.9	h **285**
1.6812	1.6902	1.6990	1.7076	1.7161	1.7244	1.7447	1.7642	1.7830	1.8013	1.8191	1.8363	1.8696	1.9317	1.9892	s (412.65)
2.307	2.352	2.396	2.440	2.484	2.528	2.637	2.745	2.852	2.959	3.065	3.171	3.382	3.802	4.219	v
1368.8	1379.3	1389.8	1400.2	1410.6	1421.1	1447.1	1473.2	1499.3	1525.5	1551.9	1578.4	1631.9	1741.2	1853.9	h **290**
1.6791	1.6881	1.6969	1.7056	1.7140	1.7224	1.7426	1.7622	1.7810	1.7993	1.8171	1.8343	1.8676	1.9298	1.9873	s (414.23)
2.267	2.310	2.354	2.398	2.441	2.484	2.591	2.698	2.803	2.908	3.013	3.117	3.325	3.737	4.147	v
1368.5	1379.1	1389.5	1400.0	1410.4	1420.9	1446.9	1473.0	1499.1	1525.4	1551.7	1578.3	1631.8	1741.1	1853.8	h **295**
1.6771	1.6861	1.6949	1.7035	1.7120	1.7204	1.7407	1.7602	1.7791	1.7974	1.8151	1.8324	1.8657	1.9279	1.9854	s (415.79)
2.227	2.271	2.314	2.357	2.399	2.442	2.547	2.652	2.756	2.859	2.962	3.065	3.269	3.674	4.078	v
1368.3	1378.8	1389.3	1399.8	1410.2	1420.6	1446.7	1472.8	1499.0	1525.2	1551.6	1578.1	1631.7	1741.0	1853.7	h **300**
1.6751	1.6841	1.6929	1.7015	1.7100	1.7184	1.7387	1.7582	1.7771	1.7954	1.8132	1.8305	1.8638	1.9260	1.9835	s (417.33)
2.190	2.232	2.275	2.317	2.359	2.401	2.505	2.608	2.710	2.812	2.913	3.014	3.215	3.614	4.011	v
1368.0	1378.5	1389.0	1399.5	1410.0	1420.4	1446.5	1472.7	1498.8	1525.1	1551.5	1578.0	1631.6	1741.0	1853.7	h **305**
1.6731	1.6821	1.6909	1.6996	1.7081	1.7165	1.7368	1.7563	1.7752	1.7935	1.8113	1.8286	1.8619	1.9241	1.9817	s (418.85)
2.153	2.195	2.237	2.279	2.320	2.361	2.463	2.565	2.666	2.766	2.865	2.965	3.162	3.555	3.946	v
1367.7	1378.3	1388.8	1399.3	1409.8	1420.2	1446.4	1472.5	1498.7	1524.9	1551.4	1577.9	1631.5	1740.9	1853.6	h **310**
1.6711	1.6801	1.6890	1.6977	1.7062	1.7145	1.7349	1.7545	1.7734	1.7917	1.8095	1.8268	1.8601	1.9223	1.9799	s (420.35)
2.118	2.159	2.200	2.241	2.282	2.323	2.423	2.523	2.622	2.721	2.819	2.917	3.112	3.498	3.883	v
1367.4	1378.0	1388.6	1399.1	1409.5	1420.0	1446.2	1472.3	1498.5	1524.8	1551.2	1577.8	1631.4	1740.8	1853.5	h **315**
1.6692	1.6782	1.6871	1.6958	1.7043	1.7127	1.7330	1.7526	1.7715	1.7899	1.8077	1.8250	1.8583	1.9205	1.9781	s (421.83)
2.083	2.124	2.165	2.205	2.245	2.285	2.385	2.483	2.581	2.678	2.775	2.871	3.063	3.443	3.822	v
1367.2	1377.8	1388.3	1398.8	1409.3	1419.8	1446.0	1472.1	1498.4	1524.7	1551.1	1577.7	1631.3	1740.7	1853.5	h **320**
1.6673	1.6763	1.6852	1.6939	1.7024	1.7108	1.7312	1.7508	1.7697	1.7880	1.8059	1.8232	1.8565	1.9187	1.9763	s (423.29)
2.050	2.090	2.130	2.170	2.210	2.249	2.347	2.444	2.540	2.636	2.731	2.826	3.015	3.390	3.763	v
1366.9	1377.5	1388.1	1398.6	1409.1	1419.6	1445.8	1472.0	1498.2	1524.5	1551.0	1577.5	1631.2	1740.7	1853.4	h **325**
1.6654	1.6744	1.6833	1.6920	1.7006	1.7090	1.7294	1.7490	1.7679	1.7863	1.8041	1.8214	1.8547	1.9170	1.9746	s (424.74)
2.018	2.058	2.097	2.136	2.175	2.214	2.311	2.406	2.501	2.596	2.690	2.783	2.969	3.339	3.706	v
1366.6	1377.2	1387.8	1398.4	1408.9	1419.4	1445.6	1471.8	1498.0	1524.4	1550.8	1577.4	1631.1	1740.6	1853.4	h **330**
1.6635	1.6726	1.6815	1.6902	1.6988	1.7072	1.7276	1.7472	1.7662	1.7845	1.8023	1.8197	1.8530	1.9153	1.9729	s (426.16)
1.9866	2.026	2.065	2.103	2.142	2.180	2.275	2.370	2.463	2.556	2.649	2.741	2.924	3.288	3.650	v
1366.3	1377.0	1387.6	1398.1	1408.7	1419.2	1445.4	1471.6	1497.9	1524.2	1550.7	1577.3	1631.0	1740.5	1853.3	h **335**
1.6617	1.6708	1.6797	1.6884	1.6970	1.7054	1.7258	1.7454	1.7644	1.7828	1.8006	1.8179	1.8513	1.9136	1.9712	s (427.58)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 430°	440°	450°	460°	470°	480°	490°	500°	520°	540°	560°	580°	600°	620°
	v	0.0191	1.3645	1.3673	1.3941	1.4201	1.4454	1.4700	1.4941	1.5178	1.5410	1.5863	1.6303	1.6733	1.7155	1.7569	1.7976
340	h	406.7	1203.7	1204.5	1212.1	1219.4	1226.4	1233.2	1239.9	1246.4	1252.8	1265.2	1277.2	1288.9	1300.4	1311.6	1322.7
(428.97)	s	0.6022	1.4992	1.5000	1.5085	1.5166	1.5243	1.5317	1.5388	1.5457	1.5524	1.5652	1.5773	1.5889	1.6000	1.6108	1.6211
	v	0.0191	1.3450		1.3707	1.3964	1.4215	1.4460	1.4699	1.4933	1.5163	1.5612	1.6047	1.6472	1.6889	1.7298	1.7701
345	h	408.2	1203.8		1211.2	1218.5	1225.6	1232.5	1239.2	1245.8	1252.1	1264.6	1276.7	1288.4	1299.9	1311.2	1322.4
(430.35)	s	0.6039	1.4979		1.5061	1.5142	1.5220	1.5294	1.5366	1.5435	1.5502	1.5631	1.5753	1.5869	1.5981	1.6089	1.6193
	v	0.0191	1.3260		1.3478	1.3734	1.3984	1.4226	1.4463	1.4696	1.4923	1.5368	1.5799	1.6220	1.6631	1.7036	1.7434
350	h	409.7	1203.9		1210.3	1217.7	1224.8	1231.7	1238.5	1245.1	1251.5	1264.1	1276.2	1288.0	1299.5	1310.9	1322.0
(431.72)	s	0.6056	1.4966		1.5037	1.5119	1.5197	1.5272	1.5344	1.5414	1.5481	1.5611	1.5733	1.5850	1.5962	1.6070	1.6174
	v	0.0191	1.3075		1.3257	1.3511	1.3759	1.3999	1.4234	1.4465	1.4690	1.5130	1.5557	1.5973	1.6381	1.6781	1.7174
355	h	411.2	1204.0		1209.3	1216.8	1224.0	1231.0	1237.8	1244.4	1250.9	1263.5	1275.7	1287.5	1299.1	1310.5	1321.7
(433.06)	s	0.6073	1.4953		1.5013	1.5095	1.5174	1.5250	1.5323	1.5393	1.5461	1.5591	1.5714	1.5831	1.5943	1.6052	1.6156
	v	0.0192	1.2895		1.3041	1.3294	1.3539	1.3778	1.4012	1.4240	1.4464	1.4900	1.5322	1.5734	1.6137	1.6533	1.6922
360	h	412.7	1204.1		1208.4	1215.9	1223.2	1230.2	1237.1	1243.8	1250.3	1263.0	1275.2	1287.1	1298.7	1310.1	1321.3
(434.40)	s	0.6090	1.4941		1.4989	1.5072	1.5152	1.5228	1.5301	1.5372	1.5440	1.5571	1.5694	1.5812	1.5925	1.6033	1.6138
	v	0.0192	1.2720		1.2831	1.3082	1.3326	1.3563	1.3795	1.4021	1.4243	1.4675	1.5094	1.5501	1.5900	1.6291	1.6676
365	h	414.1	1204.1		1207.5	1215.1	1222.4	1229.5	1236.4	1243.1	1249.6	1262.4	1274.7	1286.6	1298.2	1309.7	1320.9
(435.72)	s	0.6106	1.4928		1.4965	1.5049	1.5129	1.5206	1.5280	1.5351	1.5420	1.5551	1.5675	1.5793	1.5906	1.6015	1.6120
	v	0.0192	1.2550		1.2626	1.2876	1.3118	1.3354	1.3584	1.3808	1.4028	1.4457	1.4871	1.5275	1.5670	1.6057	1.6437
370	h	415.6	1204.2		1206.5	1214.2	1221.6	1228.7	1235.7	1242.4	1249.0	1261.8	1274.1	1286.1	1297.8	1309.3	1320.6
(437.03)	s	0.6122	1.4916		1.4942	1.5027	1.5107	1.5185	1.5259	1.5330	1.5399	1.5531	1.5656	1.5775	1.5888	1.5997	1.6103
	v	0.0192	1.2384		1.2427	1.2675	1.2916	1.3150	1.3378	1.3601	1.3819	1.4244	1.4655	1.5054	1.5445	1.5828	1.6205
375	h	417.0	1204.3		1205.6	1213.3	1220.7	1227.9	1234.9	1241.8	1248.4	1261.2	1273.6	1285.6	1297.4	1308.9	1320.2
(438.32)	s	0.6137	1.4904		1.4918	1.5004	1.5085	1.5163	1.5238	1.5310	1.5379	1.5512	1.5637	1.5756	1.5870	1.5980	1.6086
	v	0.0192	1.2222		1.2232	1.2479	1.2719	1.2951	1.3178	1.3399	1.3616	1.4037	1.4444	1.4840	1.5226	1.5605	1.5978
380	h	418.5	1204.3		1204.6	1212.4	1219.9	1227.2	1234.2	1241.1	1247.7	1260.7	1273.1	1285.2	1297.0	1308.5	1319.8
(439.60)	s	0.6153	1.4891		1.4895	1.4981	1.5063	1.5142	1.5217	1.5289	1.5359	1.5493	1.5618	1.5738	1.5852	1.5962	1.6068
	v	0.0193	1.2064			1 2289	1.2527	1.2758	1.2983	1.3202	1.3417	1.3835	1.4238	1.4830	1.5013	1.5389	1.5757
385	h	419.9	1204.3			1211.5	1219.1	1226.4	1233.5	1240.4	1247.1	1260.1	1272.6	1284.7	1296.5	1308.1	1319.5
(440.86)	s	0.6169	1.4879			1.4959	1.5042	1.5121	1.5196	1.5269	1.5340	1.5474	1.5600	1.5720	1.5835	1.5945	1.6051
	v	0.0193	1.1910			1.2102	1.2339	1.2569	1.2793	1.3011	1.3224	1.3638	1.4038	1.4426	1.4806	1.5177	1.5542
390	h	421.3	1204.4			1210.6	1218.2	1225.6	1232.8	1239.7	1246.4	1259.5	1272.1	1284.2	1296.1	1307.7	1319.1
(442.12)	s	0.6184	1.4867			1.4937	1.5020	1.5100	1.5176	1.5249	1.5320	1.5455	1.5582	1.5702	1.5817	1.5928	1.6034
	v	0.0193	1.1760			1.1921	1.2156	1.2385	1.2607	1.2824	1.3035	1.3446	1.3843	1.4228	1.4603	1.4971	1.5332
395	h	422.7	1204.4			1209.7	1217.4	1224.8	1232.0	1239.0	1245.8	1258.9	1271.5	1283.8	1295.7	1307.3	1318.7
(443.36)	s	0.6199	1.4856			1.4914	1.4998	1.5079	1.5156	1.5230	1.5301	1.5436	1.5564	1.5685	1.5800	1.5911	1.6018
	v	0.0193	1.1613			1.1744	1.1978	1.2205	1.2426	1.2641	1.2851	1.3259	1.3652	1.4034	1.4406	1.4770	1.5128
400	h	424.0	1204.5			1208.8	1216.5	1224.0	1231.3	1238.3	1245.1	1258.3	1271.0	1283.3	1295.2	1306.9	1318.3
(444.59)	s	0.6214	1.4844			1.4892	1.4977	1.5058	1.5135	1.5210	1.5281	1.5417	1.5546	1.5667	1.5783	1.5894	1.6001
	v	0.0193	1.1470			1.1571	1.1804	1.2030	1.2249	1.2463	1.2672	1.3076	1.3466	1.3845	1.4214	1.4574	1.4928
405	h	425.4	1204.5			1207.9	1215.7	1223.2	1230.5	1237.6	1244.5	1257.8	1270.5	1282.8	1294.8	1306.5	1318.0
(445.81)	s	0.6229	1.4832			1.4870	1.4956	1.5037	1.5115	1.5190	1.5262	1.5399	1.5528	1.5650	1.5766	1.5878	1.5985
	v	0.0194	1.1330			1.1401	1.1634	1.1859	1.2077	1.2289	1.2496	1.2898	1.3285	1.3660	1.4026	1.4383	1.4734
410	h	426.8	1204.5			1206.9	1214.8	1222.4	1229.8	1236.9	1243.8	1257.2	1270.0	1282.3	1294.3	1306.1	1317.6
(447.01)	s	0.6243	1.4821			1.4848	1.4935	1.5017	1.5095	1.5171	1.5243	1.5381	1.5510	1.5632	1.5749	1.5861	1.5969
	v	0.0194	1.1194			1.1236	1.1468	1.1692	1.1908	1.2119	1.2325	1.2724	1.3108	1.3480	1.3842	1.4196	1.4544
415	h	428.1	1204.6			1206.0	1214.0	1221.6	1229.0	1236.2	1243.2	1256.6	1269.4	1281.8	1293.9	1305.7	1317.2
(448.21)	s	0.6258	1.4810			1.4826	1.4913	1.4996	1.5075	1.5151	1.5224	1.5363	1.5492	1.5615	1.5733	1.5845	1.5953
	v	0.0194	1.1061			1.1075	1.1305	1.1528	1.1744	1.1953	1.2158	1.2554	1.2935	1.3304	1.3663	1.4014	1.4359
420	h	429.4	1204.6			1205.0	1213.1	1220.8	1228.3	1235.5	1242.5	1256.0	1268.9	1281.4	1293.5	1305.3	1316.9
(449.39)	s	0.6272	1.4799			1.4804	1.4892	1.4976	1.5056	1.5132	1.5205	1.5345	1.5475	1.5598	1.5716	1.5829	1.5937
	v	0.0194	1.0931				1.1146	1.1368	1.1583	1.1791	1.1995	1.2388	1.2766	1.3132	1.3488	1.3836	1.4177
425	h	430.7	1204.6				1212.2	1220.0	1227.5	1234.8	1241.8	1255.4	1268.3	1280.9	1293.0	1304.9	1316.5
(450.57)	s	0.6287	1.4788				1.4872	1.4956	1.5036	1.5113	1.5187	1.5327	1.5458	1 5582	1.5700	1.5813	1.5921

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
640°	660°	680°	700°	720°	740°	760°	780°	800°	850°	900°	950°	1000°	1200°	1400°	1600°		
1.8379	1.8777	1.9171	1.9562	1.9949	2.033	2.072	2.110	2.147	2.241	2.334	2.426	2.518	2.881	3.240	3.596	v	
1333.7	1344.6	1355.4	1366.1	1376.7	1387.3	1397.9	1408.4	1419.0	1445.2	1471.5	1497.7	1524.1	1630.9	1740.4	1853.2	h	**340**
1.6312	1.6410	1.6505	1.6599	1.6690	1.6779	1.6866	1.6952	1.7036	1.7241	1.7437	1.7627	1.7811	1.8496	1.9119	1.9695	s	(428.97)
1.8099	1.8492	1.8881	1.9267	1.9650	2.003	2.041	2.079	2.115	2.208	2.300	2.391	2.481	2.839	3.193	3.544	v	
1333.4	1344.3	1355.1	1365.8	1376.5	1387.1	1397.7	1408.2	1418.8	1445.0	1471.3	1497.6	1524.0	1630.8	1740.3	1853.2	h	**345**
1.6294	1.6392	1.6487	1.6581	1.6672	1.6761	1.6849	1.6935	1.7019	1.7223	1.7420	1.7610	1.7794	1.8480	1.9103	1.9679	s	(430.35)
1.7827	1.8215	1.8600	1.8980	1.9358	1.9732	2.010	2.048	2.084	2.176	2.266	2.356	2.445	2.798	3.147	3.493	v	
1333.0	1343.9	1354.8	1365.5	1376.2	1386.8	1397.4	1408.0	1418.5	1444.8	1471.1	1497.4	1523.8	1630.7	1740.3	1853.1	h	**350**
1.6275	1.6374	1.6470	1.6563	1.6654	1.6744	1.6831	1.6917	1.7002	1.7206	1.7403	1.7594	1.7777	1.8463	1.9086	1.9663	s	(431.72)
1.7563	1.7946	1.8326	1.8702	1.9074	1.9444	1.9812	2.018	2.054	2.145	2.234	2.322	2.410	2.758	3.102	3.444	v	
1332.7	1343.6	1354.5	1365.2	1375.9	1386.6	1397.2	1407.8	1418.3	1444.7	1471.0	1497.3	1523.7	1630.6	1740.2	1853.1	h	**355**
1.6258	1.6356	1.6452	1.6546	1.6637	1.6727	1.6814	1.6900	1.6985	1.7190	1.7387	1.7577	1.7761	1.8447	1.9071	1.9647	s	(433.06)
1.7306	1.7685	1.8060	1.8431	1.8799	1.9164	1.9527	1.9888	2.025	2.114	2.202	2.289	2.376	2.719	3.059	3.396	v	
1332.4	1343.3	1354.2	1365.0	1375.7	1386.3	1397.0	1407.5	1418.1	1444.5	1470.8	1497.1	1523.5	1630.5	1740.1	1853.0	h	**360**
1.6240	1.6339	1.6435	1.6529	1.6620	1.6710	1.6798	1.6884	1.6968	1.7173	1.7371	1.7561	1.7745	1.8431	1.9055	1.9631	s	(434.40)
1.7056	1.7430	1.7801	1.8168	1.8531	1.8892	1.9250	1.9606	1.9961	2.084	2.171	2.257	2.343	2.682	3.017	3.349	v	
1332.0	1343.0	1353.9	1364.7	1375.4	1386.1	1396.7	1407.3	1417.9	1444.3	1470.6	1497.0	1523.4	1630.4	1740.0	1852.9	h	**365**
1.6222	1.6321	1.6417	1.6511	1.6603	1.6693	1.6781	1.6867	1.6952	1.7157	1.7354	1.7545	1.7729	1.8416	1.9039	1.9616	s	(435.72)
1.6812	1.7182	1.7549	1.7911	1.8271	1.8627	1.8981	1.9333	1.9683	2.055	2.141	2.226	2.311	2.645	2.976	3.304	v	
1331.7	1342.7	1353.6	1364.4	1375.1	1385.8	1396.5	1407.1	1417.7	1444.1	1470.4	1496.8	1523.3	1630.3	1740.0	1852.9	h	**370**
1.6205	1.6304	1.6401	1.6495	1.6587	1.6677	1.6765	1.6851	1.6936	1.7141	1.7339	1.7529	1.7713	1.8400	1.9024	1.9601	s	(437.03)
1.6575	1.6941	1.7304	1.7662	1.8017	1.8369	1.8719	1.9067	1.9413	2.027	2.112	2.196	2.279	2.610	2.936	3.260	v	
1331.4	1342.4	1353.3	1364.1	1374.9	1385.6	1396.2	1406.9	1417.5	1443.9	1470.3	1496.7	1523.1	1630.2	1739.9	1852.8	h	**375**
1.6188	1.6287	1.6384	1.6478	1.6570	1.6660	1.6748	1.6835	1.6919	1.7125	1.7323	1.7514	1.7698	1.8385	1.9009	1.9586	s	(438.32)
1.6345	1.6707	1.7065	1.7419	1.7770	1.8118	1.8464	1.8808	1.9149	1.9996	2.083	2.166	2.249	2.575	2.897	3.217	v	
1331.0	1342.0	1353.0	1363.8	1374.6	1385.3	1396.0	1406.6	1417.3	1443.7	1470.1	1496.5	1523.0	1630.0	1739.8	1852.7	h	**380**
1.6171	1.6270	1.6367	1.6462	1.6554	1.6644	1.6732	1.6819	1.6904	1.7110	1.7307	1.7498	1.7683	1.8370	1.8994	1.9571	s	(439.60)
1.6120	1.6478	1.6832	1.7183	1.7529	1.7873	1.8215	1.8555	1.8893	1.9729	2.056	2.138	2.219	2.541	2.859	3.175	v	
1330.7	1341.7	1352.7	1363.6	1374.3	1385.1	1395.8	1406.4	1417.0	1443.5	1469.9	1496.4	1522.8	1629.9	1739.7	1852.7	h	**385**
1.6154	1.6254	1.6351	1.6445	1.6538	1.6628	1.6716	1.6803	1.6888	1.7094	1.7292	1.7483	1.7667	1.8355	1.8979	1.9556	s	(440.86)
1.5901	1.6255	1.6606	1.6952	1.7295	1.7635	1.7973	1.8309	1.8643	1.9469	2.029	2.110	2.190	2.508	2.822	3.134	v	
1330.3	1341.4	1352.4	1363.3	1374.1	1384.8	1395.5	1406.2	1416.8	1443.3	1469.8	1496.2	1522.7	1629.8	1739.6	1852.6	h	**390**
1.6138	1.6237	1.6335	1.6429	1.6522	1.6612	1.6701	1.6788	1.6873	1.7079	1.7277	1.7468	1.7653	1.8340	1.8965	1.9542	s	(442.12)
1.5688	1.6038	1.6385	1.6727	1.7067	1.7403	1.7737	1.8069	1.8399	1.9215	2.002	2.083	2.162	2.476	2.786	3.094	v	
1330.0	1341.1	1352.1	1363.0	1373.8	1384.6	1395.3	1406.0	1416.6	1443.1	1469.6	1496.0	1522.6	1629.7	1739.6	1852.6	h	**395**
1.6121	1.6221	1.6319	1.6413	1.6506	1.6597	1.6685	1.6772	1.6857	1.7064	1.7262	1.7453	1.7638	1.8326	1.8950	1.9527	s	(443.36)
1.5480	1.5827	1.6169	1.6508	1.6844	1.7177	1.7507	1.7835	1.8161	1.8968	1.9767	2.056	2.134	2.445	2.751	3.055	v	
1329.6	1340.8	1351.8	1362.7	1373.6	1384.3	1395.1	1405.8	1416.4	1442.9	1469.4	1495.9	1522.4	1629.6	1739.5	1852.5	h	**400**
1.6105	1.6205	1.6303	1.6398	1.6491	1.6581	1.6670	1.6757	1.6842	1.7049	1.7247	1.7438	1.7623	1.8311	1.8936	1.9513	s	(444.59)
1.5277	1.5620	1.5959	1.6294	1.6626	1.6956	1.7282	1.7607	1.7929	1.8727	1.9517	2.030	2.108	2.414	2.717	3.017	v	
1329.3	1340.4	1351.5	1362.4	1373.3	1384.1	1394.8	1405.5	1416.2	1442.8	1469.2	1495.7	1522.3	1629.5	1739.4	1852.4	h	**405**
1.6089	1.6189	1.6287	1.6382	1.6475	1.6566	1.6655	1.6742	1.6827	1.7034	1.7232	1.7424	1.7609	1.8297	1.8922	1.9499	s	(445.81)
1.5079	1.5419	1.5754	1.6086	1.6414	1.6740	1.7063	1.7384	1.7703	1.8492	1.9273	2.005	2.081	2.384	2.684	2.980	v	
1328.9	1340.1	1351.2	1362.2	1373.0	1383.8	1394.6	1405.3	1416.0	1442.6	1469.1	1495.6	1522.1	1629.4	1739.3	1852.4	h	**410**
1.6073	1.6174	1.6272	1.6367	1.6460	1.6551	1.6640	1.6727	1.6812	1.7019	1.7218	1.7409	1.7594	1.8283	1.8908	1.9485	s	(447.01)
1.4885	1.5222	1.5554	1.5883	1.6207	1.6529	1.6849	1.7167	1.7482	1.8263	1.9035	1.9800	2.056	2.355	2.651	2.944	v	
1328.6	1339.8	1350.9	1361.9	1372.8	1383.6	1394.4	1405.1	1415.8	1442.4	1468.9	1495.4	1522.0	1629.3	1739.2	1852.3	h	**415**
1.6057	1.6158	1.6256	1.6352	1.6445	1.6536	1.6625	1.6712	1.6798	1.7005	1.7204	1.7395	1.7580	1.8269	1.8894	1.9472	s	(448.21)
1.4697	1.5030	1.5359	1.5684	1.6005	1.6324	1.6641	1.6955	1.7267	1.8039	1.8802	1.9558	2.031	2.327	2.619	2.909	v	
1328.3	1339.5	1350.6	1361.6	1372.5	1383.3	1394.1	1404.8	1415.5	1442.2	1468.7	1495.3	1521.9	1629.2	1739.2	1852.2	h	**420**
1.6042	1.6143	1.6241	1.6337	1.6430	1.6521	1.6610	1.6697	1.6783	1.6990	1.7189	1.7381	1.7566	1.8256	1.8881	1.9458	s	(449.39)
1.4512	1.4842	1.5168	1.5490	1.5808	1.6124	1.6437	1.6748	1.7056	1.7820	1.8576	1.9322	2.007	2.299	2.588	2.875	v	
1327.9	1339.2	1350.3	1361.3	1372.2	1383.1	1393.9	1404.6	1415.3	1442.0	1468.6	1495.1	1521.7	1629.1	1739.1	1852.2	h	**425**
1.6026	1.6127	1.6226	1.6322	1.6415	1.6507	1.6596	1.6683	1.6769	1.6976	1.7175	1.7367	1.7553	1.8242	1.8868	1.9445	s	(450.57)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 460°	470°	480°	490°	500°	520°	540°	560°	580°	600°	620°	640°	660°	680°
	v	0.0194	1.0803	1.0991	1.1212	1.1425	1.1633	1.1835	1.2226	1.2601	1.2965	1.3318	1.3662	1.4000	1.4332	1.4659	1.4982
430	h	432.1	1204.6	1211.3	1219.2	1226.7	1234.0	1241.1	1254.8	1267.8	1280.4	1292.6	1304.4	1316.1	1327.6	1338.8	1350.0
(451.73)	s	0.6301	1.4777	1.4851	1.4936	1.5017	1.5094	1.5168	1.5309	1.5441	1.5565	1.5684	1.5797	1.5906	1.6011	1.6112	1.6211
	v	0.0195	1.0678	1.0839	1.1059	1.1272	1.1479	1.1679	1.2067	1.2440	1.2800	1.3151	1.3493	1.3827	1.4157	1.4480	1.4800
435	h	433.4	1204.6	1210.4	1218.3	1225.9	1233.3	1240.5	1254.2	1267.3	1279.9	1292.1	1304.0	1315.7	1327.2	1338.5	1349.7
(452.88)	s	0.6315	1.4766	1.4830	1.4916	1.4997	1.5075	1.5150	1.5291	1.5424	1.5549	1.5667	1.5781	1.5890	1.5996	1.6097	1.6196
	v	0.0195	1.0556	1.0691	1.0910	1.1121	1.1327	1.1526	1.1912	1.2282	1.2640	1.2988	1.3327	1.3658	1.3984	1.4306	1.4622
440	h	434.6	1204.6	1209.5	1217.5	1225.2	1232.6	1239.8	1253.6	1266.7	1279.4	1291.7	1303.6	1315.4	1326.9	1338.2	1349.4
(454.02)	s	0.6329	1.4755	1.4809	1.4896	1.4978	1.5056	1.5132	1.5274	1.5407	1.5532	1.5652	1.5766	1.5875	1.5981	1.6083	1.6182
	v	0.0195	1.0437	1.0546	1.0764	1.0974	1.1179	1.1377	1.1760	1.2128	1.2483	1.2828	1.3164	1.3493	1.3816	1.4134	1.4448
445	h	435.9	1204.6	1208.6	1216.7	1224.4	1231.8	1239.1	1253.0	1266.2	1278.9	1291.2	1303.2	1315.0	1326.5	1337.9	1349.1
(455.15)	s	0.6343	1.4745	1.4789	1.4876	1.4959	1.5038	1.5113	1.5256	1.5390	1.5516	1.5636	1.5750	1.5860	1.5966	1.6068	1.6167
	v	0.0195	1.0320	1.0403	1.0621	1.0830	1.1033	1.1231	1.1612	1.1977	1.2330	1.2672	1.3005	1.3332	1.3652	1.3967	1.4278
450	h	437.2	1204.6	1207.7	1215.8	1223.6	1231.1	1238.4	1252.3	1265.6	1278.4	1290.8	1302.8	1314.6	1326.2	1337.5	1348.8
(456.28)	s	0.6356	1.4734	1.4768	1.4856	1.4939	1.5019	1.5095	1.5239	1.5373	1.5500	1.5620	1.5735	1.5845	1.5951	1.6054	1.6153
	v	0.0195	1.0206	1.0264	1.0481	1.0689	1.0892	1.1088	1.1467	1.1830	1.2180	1.2519	1.2850	1.3174	1.3491	1.3804	1.4111
455	h	438.5	1204.6	1206.8	1215.0	1222.8	1230.4	1237.7	1251.7	1265.1	1277.9	1290.3	1302.4	1314.2	1325.8	1337.2	1348.5
(457.39)	s	0.6370	1.4724	1.4748	1.4836	1.4920	1.5000	1.5077	1.5222	1.5357	1.5484	1.5605	1.5720	1.5830	1.5936	1.6039	1.6139
	v	0.0196	1.0094	1.0128	1.0344	1.0551	1.0753	1.0948	1.1325	1.1685	1.2033	1.2370	1.2698	1.3019	1.3334	1.3644	1.3949
460	h	439.7	1204.6	1205.8	1214.1	1222.0	1229.6	1237.0	1251.1	1264.5	1277.4	1289.9	1302.0	1313.8	1325.4	1336.9	1348.1
(458.50)	s	0.6383	1.4713	1.4728	1.4817	1.4901	1.4982	1.5059	1.5205	1.5340	1.5468	1.5589	1.5705	1.5815	1.5922	1.6025	1.6125
	v	0.0196	0.9985	0.9994	1.0210	1.0416	1.0617	1.0811	1.1186	1.1544	1.1889	1.2224	1.2550	1.2868	1.3180	1.3488	1.3789
465	h	440.9	1204.6	1204.9	1213.2	1221.2	1228.9	1236.3	1250.5	1264.0	1276.9	1289.4	1301.6	1313.5	1325.1	1336.5	1347.8
(459.59)	s	0.6397	1.4703	1.4707	1.4797	1.4882	1.4964	1.5042	1.5188	1.5324	1.5452	1.5574	1.5690	1.5800	1.5907	1.6011	1.6111
	v	0.0196	0.9878		1.0078	1.0284	1.0483	1.0677	1.1050	1.1406	1.1749	1.2081	1.2404	1.2720	1.3029	1.3335	1.3633
470	h	442.2	1204.6		1212.4	1220.4	1228.1	1235.6	1249.9	1263.4	1276.4	1289.0	1301.2	1313.1	1324.7	1336.2	1347.5
(460.68)	s	0.6410	1.4693		1.4778	1.4864	1.4946	1.5024	1.5171	1.5308	1.5437	1.5559	1.5675	1.5786	1.5893	1.5997	1.6097
	v	0.0196	0.9773		0.9949	1.0154	1.0353	1.0546	1.0916	1.1270	1.1611	1.1941	1.2261	1.2575	1.2882	1.3185	1.3481
475	h	443.4	1204.5		1211.5	1219.6	1227.3	1234.9	1249.2	1262.8	1275.9	1288.5	1300.7	1312.7	1324.4	1335.9	1347.2
(461.75)	s	0.6423	1.4683		1.4758	1.4845	1.4927	1.5006	1.5154	1.5292	1.5421	1.5543	1.5660	1.5772	1.5879	1.5983	1.6083
	v	0.0197	0.9670		0.9822	1.0027	1.0225	1.0417	1.0786	1.1138	1.1476	1.1803	1.2122	1.2433	1.2737	1.3038	1.3331
480	h	444.6	1204.5		1210.6	1218.8	1226.6	1234.2	1248.6	1262.3	1275.4	1288.0	1300.3	1312.3	1324.0	1335.6	1346.9
(462.82)	s	0.6436	1.4673		1.4739	1.4826	1.4909	1.4989	1.5138	1.5276	1.5406	1.5528	1.5645	1.5757	1.5865	1.5969	1.6069
	v	0.0197	0.9569		0.9698	0.9902	1.0100	1.0291	1.0658	1.1007	1.1344	1.1669	1.1985	1.2294	1.2596	1.2895	1.3185
485	h	445.8	1204.5		1209.7	1217.9	1225.8	1233.4	1248.0	1261.7	1274.9	1287.6	1299.9	1311.9	1323.7	1335.2	1346.6
(463.88)	s	0.6449	1.4663		1.4720	1.4808	1.4891	1.4971	1.5121	1.5260	1.5390	1.5514	1.5631	1.5743	1.5851	1.5955	1.6056
	v	0.0197	0.9470		0.9576	0.9780	0.9977	1.0167	1.0532	1.0880	1.1214	1.1537	1.1851	1.2157	1.2457	1.2754	1.3042
490	h	447.0	1204.5		1208.8	1217.1	1225.0	1232.7	1247.3	1261.2	1274.4	1287.1	1299.5	1311.5	1323.3	1334.9	1346.3
(464.93)	s	0.6462	1.4653		1.4700	1.4789	1.4874	1.4954	1.5104	1.5244	1.5375	1.5499	1.5617	1.5729	1.5837	1.5942	1.6043
	v	0.0197	0.9373		0.9457	0.9660	0.9856	1.0046	1.0409	1.0755	1.1087	1.1408	1.1720	1.2024	1.2321	1.2616	1.2901
495	h	448.2	1204.4		1207.9	1216.3	1224.3	1232.0	1246.7	1260.6	1273.9	1286.7	1299.0	1311.1	1322.9	1334.6	1346.0
(465.97)	s	0.6475	1.4644		1.4681	1.4771	1.4856	1.4936	1.5088	1.5229	1.5360	1.5484	1.5602	1.5715	1.5824	1.5928	1.6029
	v	0.0197	0.9278		0.9340	0.9543	0.9738	0.9927	1.0289	1.0633	1.0963	1.1282	1.1591	1.1893	1.2188	1.2478	1.2763
500	h	449.4	1204.4		1207.0	1215.4	1223.5	1231.3	1246.0	1260.0	1273.4	1286.2	1298.6	1310.7	1322.6	1334.2	1345.7
(467.01)	s	0.6487	1.4634		1.4662	1.4752	1.4838	1.4919	1.5072	1.5213	1.5345	1.5470	1.5588	1.5701	1.5810	1.5915	1.6016
	v	0.0198	0.9093		0.9113	0.9314	0.9508	0.9696	1.0054	1.0395	1.0721	1.1036	1.1341	1.1639	1.1930	1.2215	1.2496
510	h	451.8	1204.3		1205.2	1213.7	1221.9	1229.8	1244.7	1258.9	1272.4	1285.3	1297.8	1310.0	1321.9	1333.6	1345.0
(469.05)	s	0.6512	1.4615		1.4624	1.4716	1.4802	1.4885	1.5039	1.5182	1.5315	1.5441	1.5560	1.5674	1.5783	1.5889	1.5990
	v	0.0198	0.8915			0.9094	0.9287	0.9473	0.9829	1.0166	1.0488	1.0799	1.1101	1.1394	1.1681	1.1962	1.2239
520	h	454.1	1204.2			1212.0	1220.3	1228.3	1243.4	1257.7	1271.3	1284.3	1296.9	1309.2	1321.1	1332.9	1344.4
(471.07)	s	0.6536	1.4596			1.4679	1.4767	1.4851	1.5007	1.5151	1.5286	1.5412	1.5532	1.5647	1.5757	1.5863	1.5965
	v	0.0199	0.8743			0.8882	0.9074	0.9259	0.9611	0.9945	1.0264	1.0572	1.0869	1.1159	1.1442	1.1719	1.1991
530	h	456.4	1204.1			1210.3	1218.7	1226.8	1242.1	1256.5	1270.2	1283.4	1296.1	1308.4	1320.4	1332.2	1343.8
(473.06)	s	0.6560	1.4578			1.4643	1.4732	1.4817	1.4975	1.5121	1.5257	1.5384	1.5505	1.5620	1.5731	1.5837	1.5940

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)
700°	720°	740°	760°	780°	800°	850°	900°	950°	1000°	1050°	1100°	1200°	1400°	1600°		
1.5300	1.5616	1.5928	1.6238	1.6545	1.6851	1.7607	1.8354	1.9093	1.9827	2.056	2.128	2.272	2.558	2.841	v	
1361.0	1372.0	1382.8	1393.6	1404.4	1415.1	1441.8	1468.4	1495.0	1521.6	1548.3	1575.1	1629.0	1739.0	1852.1	h	**430**
1.6307	1.6401	1.6492	1.6581	1.6669	1.6755	1.6963	1.7162	1.7354	1.7539	1.7719	1.7893	1.8229	1.8854	1.9432	s	(451.73)
1.5115	1.5427	1.5736	1.6043	1.6348	1.6650	1.7398	1.8137	1.8868	1.9595	2.032	2.103	2.246	2.528	2.808	v	
1360.7	1371.7	1382.6	1393.4	1404.2	1414.9	1441.6	1468.2	1494.8	1521.4	1548.1	1574.9	1628.9	1738.9	1852.1	h	**435**
1.6292	1.6386	1.6478	1.6567	1.6655	1.6741	1.6949	1.7148	1.7340	1.7526	1.7706	1.7880	1.8216	1.8841	1.9419	s	(452.88)
1.4934	1.5243	1.5549	1.5853	1.6155	1.6454	1.7194	1.7925	1.8649	1.9368	2.008	2.079	2.220	2.499	2.776	v	
1360.4	1371.4	1382.3	1393.2	1403.9	1414.7	1441.4	1468.1	1494.7	1521.3	1548.0	1574.8	1628.8	1738.9	1852.0	h	**440**
1.6278	1.6372	1.6464	1.6553	1.6641	1.6727	1.6935	1.7135	1.7327	1.7512	1.7692	1.7867	1.8203	1.8828	1.9406	s	(454.02)
1.4757	1.5063	1.5366	1.5667	1.5966	1.6262	1.6995	1.7718	1.8435	1.9146	1.9851	2.055	2.195	2.471	2.745	v	
1360.2	1371.2	1382.1	1392.9	1403.7	1414.5	1441.2	1467.9	1494.5	1521.2	1547.9	1574.7	1628.7	1738.8	1851.9	h	**445**
1.6264	1.6358	1.6450	1.6539	1.6627	1.6713	1.6921	1.7121	1.7313	1.7499	1.7679	1.7854	1.8190	1.8816	1.9393	s	(455.15)
1.4584	1.4888	1.5188	1.5486	1.5781	1.6074	1.6800	1.7516	1.8225	1.8928	1.9627	2.032	2.170	2.443	2.714	v	
1359.9	1370.9	1381.8	1392.7	1403.5	1414.3	1441.0	1467.7	1494.3	1521.0	1547.7	1574.6	1628.6	1738.7	1851.9	h	**450**
1.6250	1.6344	1.6436	1.6525	1.6613	1.6699	1.6908	1.7108	1.7300	1.7486	1.7666	1.7841	1.8177	1.8803	1.9381	s	(456.28)
1.4415	1.4716	1.5013	1.5308	1.5601	1.5891	1.6610	1.7318	1.8020	1.8716	1.9407	2.009	2.146	2.416	2.784	v	
1359.6	1370.6	1381.6	1392.4	1403.3	1414.0	1440.8	1467.5	1494.2	1520.9	1547.6	1574.5	1628.5	1738.6	1851.8	h	**455**
1.6236	1.6330	1.6422	1.6512	1.6600	1.6686	1.6895	1.7095	1.7287	1.7473	1.7653	1.7828	1.8164	1.8790	1.9368	s	(457.39)
1.4250	1.4547	1.4842	1.5134	1.5424	1.5711	1.6423	1.7124	1.7819	1.8508	1.9192	1.9873	2.122	2.390	2.655	v	
1359.3	1370.3	1381.3	1392.2	1403.0	1413.8	1440.7	1467.4	1494.0	1520.7	1547.5	1574.3	1628.4	1738.5	1851.7	h	**460**
1.6222	1.6316	1.6408	1.6498	1.6586	1.6673	1.6882	1.7082	1.7274	1.7460	1.7641	1.7816	1.8152	1.8778	1.9356	s	(458.50)
1.4088	1.4382	1.4675	1.4964	1.5251	1.5536	1.6240	1.6935	1.7623	1.8305	1.8982	1.9655	2.099	2.364	2.626	v	
1359.0	1370.1	1381.1	1392.0	1402.8	1413.6	1440.5	1467.2	1493.9	1520.6	1547.4	1574.2	1628.3	1738.5	1851.7	h	**465**
1.6208	1.6302	1.6395	1.6485	1.6573	1.6660	1.6869	1.7069	1.7262	1.7448	1.7628	1.7803	1.8139	1.8766	1.9344	s	(459.59)
1.3929	1.4221	1.4511	1.4797	1.5082	1.5364	1.6061	1.6750	1.7431	1.8106	1.8776	1.9443	2.077	2.339	2.598	v	
1358.7	1369.8	1380.8	1391.7	1402.6	1413.4	1440.3	1467.0	1493.7	1520.4	1547.2	1574.1	1628.2	1738.4	1851.6	h	**470**
1.6194	1.6289	1.6382	1.6472	1.6560	1.6646	1.6856	1.7056	1.7249	1.7435	1.7616	1.7791	1.8127	1.8754	1.9332	s	(460.68)
1.3774	1.4063	1.4350	1.4634	1.4916	1.5196	1.5886	1.6568	1.7243	1.7911	1.8575	1.9235	2.054	2.314	2.571	v	
1358.4	1369.5	1380.5	1391.5	1402.3	1413.2	1440.1	1466.8	1493.6	1520.3	1547.1	1574.0	1628.1	1738.3	1851.6	h	**475**
1.6181	1.6276	1.6368	1.6458	1.6547	1.6633	1.6843	1.7044	1.7237	1.7423	1.7603	1.7779	1.8115	1.8742	1.9320	s	(461.75)
1.3622	1.3909	1.4193	1.4475	1.4754	1.5031	1.5715	1.6390	1.7058	1.7720	1.8378	1.9031	2.033	2.290	2.544	v	
1358.2	1369.3	1380.3	1391.2	1402.1	1412.9	1439.9	1466.7	1493.4	1520.2	1547.0	1573.9	1628.0	1738.2	1851.5	h	**480**
1.6167	1.6262	1.6355	1.6445	1.6534	1.6621	1.6830	1.7031	1.7224	1.7411	1.7591	1.7767	1.8103	1.8730	1.9308	s	(462.82)
1.3473	1.3758	1.4040	1.4318	1.4595	1.4869	1.5547	1.6216	1.6878	1.7533	1.8185	1.8831	2.012	2.266	2.518	v	
1357.9	1369.0	1380.0	1391.0	1401.9	1412.7	1439.7	1466.5	1493.3	1520.0	1546.8	1573.7	1627.9	1738.1	1851.4	h	**485**
1.6154	1.6249	1.6342	1.6433	1.6521	1.6608	1.6818	1.7019	1.7212	1.7399	1.7579	1.7755	1.8091	1.8718	1.9297	s	(463.88)
1.3327	1.3610	1.3890	1.4165	1.4439	1.4711	1.5383	1.6046	1.6701	1.7350	1.7995	1.8636	1.9907	2.242	2.492	v	
1357.6	1368.7	1379.8	1390.7	1401.7	1412.5	1439.5	1466.3	1493.1	1519.9	1546.7	1573.6	1627.8	1738.1	1851.4	h	**490**
1.6141	1.6236	1.6329	1.6420	1.6509	1.6595	1.6805	1.7007	1.7200	1.7387	1.7567	1.7743	1.8079	1.8706	1.9285	s	(464.93)
1.3184	1.3465	1.3742	1.4015	1.4286	1.4557	1.5222	1.5879	1.6528	1.7171	1.7810	1.8444	1.9704	2.219	2.466	v	
1357.3	1368.5	1379.5	1390.5	1401.4	1412.3	1439.3	1466.2	1493.0	1519.7	1546.6	1573.5	1627.7	1738.0	1851.3	h	**495**
1.6128	1.6223	1.6316	1.6407	1.6496	1.6583	1.6793	1.6994	1.7188	1.7375	1.7555	1.7731	1.8068	1.8695	1.9274	s	(465.97)
1.3044	1.3322	1.3596	1.3868	1.4137	1.4405	1.5065	1.5715	1.6358	1.6996	1.7628	1.8256	1.9504	2.197	2.442	v	
1357.0	1368.2	1379.3	1390.3	1401.2	1412.1	1439.1	1466.0	1492.8	1519.6	1546.4	1573.4	1627.6	1737.9	1851.3	h	**500**
1.6115	1.6210	1.6304	1.6395	1.6483	1.6571	1.6781	1.6982	1.7176	1.7363	1.7544	1.7719	1.8056	1.8683	1.9262	s	(467.01)
1.2772	1.3046	1.3315	1.3583	1.3847	1.4110	1.4758	1.5397	1.6029	1.6654	1.7275	1.7892	1.9116	2.154	2.394	v	
1356.4	1367.6	1378.7	1389.8	1400.7	1411.6	1438.7	1465.6	1492.5	1519.3	1546.2	1573.2	1627.4	1737.7	1851.1	h	**510**
1.6089	1.6185	1.6279	1.6370	1.6459	1.6546	1.6757	1.6959	1.7153	1.7340	1.7521	1.7696	1.8033	1.8661	1.9240	s	(469.05)
1.2511	1.2780	1.3045	1.3308	1.3568	1.3826	1.4464	1.5091	1.5712	1.6326	1.6936	1.7542	1.8743	2.112	2.347	v	
1355.8	1367.1	1378.2	1389.3	1400.3	1411.2	1438.3	1465.3	1492.2	1519.0	1545.9	1572.9	1627.2	1737.6	1851.0	h	**520**
1.6064	1.6160	1.6254	1.6345	1.6435	1.6522	1.6733	1.6935	1.7130	1.7317	1.7498	1.7674	1.8011	1.8639	1.9218	s	(471.07)
1.2259	1.2524	1.2785	1.3043	1.3299	1.3554	1.4180	1.4797	1.5407	1.6011	1.6609	1.7205	1.8384	2.072	2.303	v	
1355.2	1366.5	1377.7	1388.8	1399.8	1410.8	1438.0	1465.0	1491.9	1518.7	1545.7	1572.7	1627.0	1737.4	1850.9	h	**530**
1.6039	1.6136	1.6230	1.6321	1.6411	1.6498	1.6710	1.6912	1.7107	1.7294	1.7476	1.7652	1.7989	1.8617	1.9196	s	(473.06)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 480°	490°	500°	510°	520°	530°	540°	550°	560°	570°	580°	590°	600°	620°
	v	0.0199	0.8578	0.8676	0.8868	0.9052	0.9229	0.9402	0.9569	0.9733	0.9892	1.0049	1.0202	1.0352	1.0500	1.0646	1.0932
540	h	458.6	1204.0	1208.5	1217.1	1225.3	1233.1	1240.8	1248.2	1255.4	1262.3	1269.2	1275.9	1282.4	1288.8	1295.2	1307.6
(475.01)	s	0.6584	1.4560	1.4607	1.4698	1.4784	1.4866	1.4944	1.5019	1.5091	1.5161	1.5228	1.5293	1.5356	1.5418	1.5478	1.5594
	v	0.0199	0.8419	0.8478	0.8669	0.8852	0.9028	0.9199	0.9365	0.9528	0.9686	0.9840	0.9992	1.0141	1.0287	1.0431	1.0714
550	h	460.8	1203.9	1206.7	1215.4	1223.7	1231.7	1239.4	1246.9	1254.2	1261.2	1268.1	1274.9	1281.5	1287.9	1294.3	1306.8
(476.94)	s	0.6608	1.4542	1.4571	1.4663	1.4751	1.4834	1.4913	1.4988	1.5061	1.5131	1.5199	1.5265	1.5329	1.5391	1.5451	1.5568
	v	0.0200	0.8265	0.8287	0.8477	0.8659	0.8834	0.9004	0.9169	0.9330	0.9486	0.9639	0.9789	0.9937	1.0081	1.0224	1.0503
560	h	463.0	1203.8	1204.9	1213.7	1222.2	1230.3	1238.1	1245.6	1253.0	1260.1	1267.1	1273.8	1280.5	1287.0	1293.4	1306.0
(478.85)	s	0.6631	1.4524	1.4535	1.4629	1.4717	1.4802	1.4882	1.4958	1.5032	1.5103	1.5171	1.5237	1.5302	1.5364	1.5425	1.5542
	v	0.0200	0.8117		0.8291	0.8472	0.8646	0.8815	0.8979	0.9138	0.9293	0.9445	0.9594	0.9740	0.9883	1.0024	1.0299
570	h	465.2	1203.6		1212.0	1220.6	1228.8	1236.7	1244.3	1251.8	1259.0	1266.0	1272.8	1279.5	1286.1	1292.6	1305.2
(480.73)	s	0.6654	1.4506		1.4594	1.4684	1.4770	1.4851	1.4928	1.5003	1.5074	1.5143	1.5210	1.5275	1.5338	1.5399	1.5517
	v	0.0201	0.7973		0.8111	0.8291	0.8465	0.8633	0.8795	0.8954	0.9107	0.9258	0.9405	0.9549	0.9691	0.9830	1.0103
580	h	467.4	1203.5		1210.3	1219.0	1227.3	1235.3	1243.0	1250.5	1257.8	1264.9	1271.8	1278.5	1285.2	1291.7	1304.4
(482.58)	s	0.6676	1.4489		1.4560	1.4652	1.4738	1.4820	1.4898	1.4974	1.5046	1.5116	1.5183	1.5248	1.5312	1.5373	1.5492
	v	0.0201	0.7833		0.7937	0.8117	0.8290	0.8457	0.8618	0.8775	0.8927	0.9077	0.9222	0.9365	0.9506	0.9643	0.9913
590	h	469.5	1203.4		1208.5	1217.4	1225.8	1233.9	1241.7	1249.3	1256.6	1263.8	1270.8	1277.6	1284.3	1290.8	1303.6
(484.41)	s	0.6698	1.4472		1.4526	1.4619	1.4706	1.4790	1.4869	1.4945	1.5018	1.5088	1.5156	1.5222	1.5286	1.5348	1.5467
	v	0.0201	0.7698		0.7768	0.7947	0.8120	0.8286	0.8446	0.8602	0.8753	0.8901	0.9046	0.9187	0.9326	0.9463	0.9729
600	h	471.6	1203.2		1206.7	1215.7	1224.3	1232.5	1240.4	1248.1	1255.5	1262.7	1269.7	1276.6	1283.3	1289.9	1302.7
(486.21)	s	0.6720	1.4454		1.4492	1.4586	1.4675	1.4759	1.4839	1.4916	1.4990	1.5061	1.5130	1.5196	1.5260	1.5323	1.5443
	v	0.0202	0.7567		0.7604	0.7783	0.7955	0.8120	0.8279	0.8434	0.8585	0.8732	0.8875	0.9015	0.9153	0.9288	0.9551
610	h	473.7	1203.1		1205.0	1214.1	1222.8	1231.1	1239.1	1246.8	1254.3	1261.6	1268.6	1275.6	1282.3	1289.0	1301.9
(487.99)	s	0.6742	1.4437		1.4458	1.4553	1.4644	1.4729	1.4810	1.4888	1.4963	1.5034	1.5103	1.5170	1.5235	1.5298	1.5419
	v	0.0202	0.7440		0.7445	0.7624	0.7795	0.7960	0.8118	0.8272	0.8421	0.8567	0.8709	0.8848	0.8984	0.9118	0.9379
620	h	475.7	1202.9		1203.1	1212.4	1221.2	1229.6	1237.7	1245.5	1253.1	1260.4	1267.6	1274.6	1281.4	1288.1	1301.1
(489.75)	s	0.6763	1.4421		1.4424	1.4521	1.4613	1.4699	1.4781	1.4860	1.4935	1.5007	1.5077	1.5145	1.5210	1.5273	1.5395
	v	0.0202	0.7317			0.7469	0.7640	0.7804	0.7962	0.8115	0.8263	0.8408	0.8549	0.8687	0.8821	0.8954	0.9213
630	h	477.8	1202.7			1210.7	1219.6	1228.2	1236.4	1244.3	1251.9	1259.3	1266.5	1273.5	1280.4	1287.1	1300.2
(491.49)	s	0.6784	1.4405			1.4489	1.4582	1.4669	1.4753	1.4832	1.4908	1.4981	1.5051	1.5119	1.5185	1.5249	1.5371
	v	0.0203	0.7198			0.7319	0.7490	0.7653	0.7810	0.7962	0.8110	0.8253	0.8393	0.8530	0.8664	0.8795	0.9051
640	h	479.8	1202.5			1209.0	1218.0	1226.7	1235.0	1243.0	1250.7	1258.2	1265.4	1272.5	1279.4	1286.2	1299.4
(493.21)	s	0.6805	1.4389			1.4456	1.4551	1.4640	1.4724	1.4804	1.4881	1.4955	1.5026	1.5094	1.5160	1.5225	1.5348
	v	0.0203	0.7083			0.7173	0.7343	0.7506	0.7663	0.7814	0.7961	0.8103	0.8242	0.8378	0.8511	0.8641	0.8894
650	h	481.8	1202.3			1207.2	1216.4	1225.2	1233.6	1241.7	1249.5	1257.0	1264.4	1271.5	1278.5	1285.3	1298.6
(494.90)	s	0.6825	1.4373			1.4424	1.4520	1.4610	1.4695	1.4776	1.4854	1.4928	1.5000	1.5069	1.5136	1.5201	1.5325
	v	0.0204	0.6971			0.7032	0.7201	0.7363	0.7520	0.7670	0.7816	0.7958	0.8096	0.8230	0.8362	0.8491	0.8742
660	h	483.8	1202.1			1205.4	1214.8	1223.7	1232.2	1240.4	1248.2	1255.9	1263.3	1270.5	1277.5	1284.4	1297.7
(496.58)	s	0.6846	1.4358			1.4392	1.4489	1.4581	1.4667	1.4749	1.4828	1.4903	1.4975	1.5045	1.5112	1.5177	1.5302
	v	0.0204	0.6862			0.6894	0.7063	0.7225	0.7381	0.7530	0.7675	0.7816	0.7953	0.8087	0.8218	0.8346	0.8595
670	h	485.8	1201.9			1203.6	1213.1	1222.2	1230.8	1239.0	1247.0	1254.7	1262.2	1269.4	1276.5	1283.4	1296.9
(498.24)	s	0.6866	1.4342			1.4360	1.4459	1.4551	1.4639	1.4722	1.4801	1.4877	1.4950	1.5020	1.5088	1.5154	1.5279
	v	0.0204	0.6757			0.6759	0.6929	0.7090	0.7245	0.7395	0.7539	0.7679	0.7815	0.7948	0.8078	0.8205	0.8451
680	h	487.7	1201.7			1201.8	1211.4	1220.6	1229.3	1237.7	1245.7	1253.5	1261.1	1268.4	1275.5	1282.5	1296.0
(499.88)	s	0.6886	1.4327			1.4328	1.4428	1.4522	1.4611	1.4695	1.4775	1.4851	1.4925	1.4996	1.5064	1.5130	1.5257
	v	0.0205	0.6654				0.6798	0.6959	0.7114	0.7262	0.7406	0.7545	0.7681	0.7813	0.7941	0.8067	0.8312
690	h	489.6	1201.4				1209.7	1219.0	1227.9	1236.3	1244.5	1252.3	1259.9	1267.3	1274.5	1281.5	1295.2
(501.50)	s	0.6905	1.4311				1.4398	1.4493	1.4583	1.4667	1.4748	1.4826	1.4900	1.4971	1.5040	1.5107	1.5234
	v	0.0205	0.6554				0.6670	0.6832	0.6986	0.7134	0.7277	0.7416	0.7550	0.7681	0.7809	0.7934	0.8177
700	h	491.5	1201.2				1208.0	1217.5	1226.4	1235.0	1243.2	1251.1	1258.8	1266.3	1273.5	1280.6	1294.3
(503.10)	s	0.6925	1.4296				1.4367	1.4463	1.4554	1.4640	1.4722	1.4800	1.4875	1.4947	1.5017	1.5084	1.5212
	v	0.0205	0.6457				0.6546	0.6707	0.6861	0.7009	0.7151	0.7289	0.7423	0.7553	0.7680	0.7804	0.8045
710	h	493.4	1201.0				1206.3	1215.9	1224.9	1233.6	1241.9	1249.9	1257.7	1265.2	1272.5	1279.6	1293.4
(504.68)	s	0.6944	1.4281				1.4336	1.4434	1.4527	1.4614	1.4696	1.4775	1.4851	1.4924	1.4994	1.5061	1.5190

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
640°	660°	680°	700°	720°	740°	760°	780°	800°	850°	900°	950°	1000°	1200°	1400°	1600°		
1.1211	1.1485	1.1753	1.2017	1.2277	1.2535	1.2789	1.3041	1.3291	1.3907	1.4514	1.5113	1.5707	1.8039	2.033	2.260	v	
1319.7	1331.5	1343.2	1354.6	1366.0	1377.2	1388.3	1399.4	1410.3	1437.6	1464.6	1491.5	1518.5	1626.8	1737.3	1850.7	h	540
1.5705	1.5812	1.5915	1.6015	1.6111	1.6206	1.6298	1.6388	1.6475	1.6687	1.6890	1.7085	1.7272	1.7968	1.8596	1.9175	s	(475.01)
1.0989	1.1259	1.1523	1.1783	1.2040	1.2293	1.2544	1.2792	1.3038	1.3644	1.4241	1.4830	1.5414	1.7706	1.9957	2.219	v	
1318.9	1330.8	1342.5	1354.0	1365.4	1376.7	1387.8	1398.9	1409.9	1437.2	1464.3	1491.2	1518.2	1626.6	1737.1	1850.6	h	550
1.5680	1.5787	1.5890	1.5991	1.6088	1.6182	1.6274	1.6365	1.6452	1.6665	1.6868	1.7063	1.7250	1.7946	1.8575	1.9155	s	(476.94)
1.0775	1.1041	1.1302	1.1558	1.1811	1.2060	1.2307	1.2552	1.2794	1.3390	1.3978	1.4557	1.5132	1.7385	1.9597	2.179	v	
1318.2	1330.2	1341.9	1353.5	1364.9	1376.1	1387.3	1398.4	1409.4	1436.8	1463.9	1490.9	1517.9	1626.4	1737.0	1850.5	h	560
1.5655	1.5762	1.5866	1.5967	1.6064	1.6159	1.6251	1.6342	1.6430	1.6643	1.6846	1.7041	1.7229	1.7926	1.8555	1.9134	s	(478.85)
1.0568	1.0830	1.1088	1.1341	1.1590	1.1835	1.2079	1.2320	1.2558	1.3145	1.3724	1.4294	1.4859	1.7075	1.9250	2.140	v	
1317.5	1329.5	1341.3	1352.9	1364.3	1375.6	1386.8	1398.0	1409.0	1436.4	1463.6	1490.6	1517.6	1626.2	1736.8	1850.4	h	570
1.5630	1.5738	1.5842	1.5943	1.6041	1.6136	1.6229	1.6320	1.6408	1.6621	1.6825	1.7020	1.7208	1.7905	1.8534	1.9114	s	(480.73)
1.0368	1.0627	1.0881	1.1131	1.1376	1.1619	1.1859	1.2096	1.2331	1.2909	1.3479	1.4040	1.4596	1.6776	1.8915	2.103	v	
1316.7	1328.8	1340.6	1352.3	1363.7	1375.1	1386.3	1397.5	1408.6	1436.0	1463.2	1490.3	1517.3	1626.0	1736.6	1850.2	h	580
1.5605	1.5714	1.5819	1.5920	1.6018	1.6114	1.6207	1.6298	1.6386	1.6600	1.6804	1.6999	1.7188	1.7885	1.8515	1.9095	s	(482.58)
1.0175	1.0431	1.0682	1.0928	1.1170	1.1410	1.1646	1.1879	1.2111	1.2681	1.3242	1.3794	1.4342	1.6487	1.8592	2.067	v	
1316.0	1328.1	1340.0	1351.7	1363.2	1374.6	1385.8	1397.0	1408.1	1435.6	1462.9	1490.0	1517.0	1625.7	1736.5	1850.1	h	590
1.5581	1.5691	1.5796	1.5898	1.5996	1.6092	1.6185	1.6276	1.6365	1.6579	1.6783	1.6979	1.7167	1.7865	1.8495	1.9075	s	(484.41)
0.9988	1.0241	1.0489	1.0732	1.0971	1.1207	1.1440	1.1670	1.1899	1.2460	1.3013	1.3557	1.4096	1.6208	1.8279	2.033	v	
1315.2	1327.4	1339.3	1351.1	1362.6	1374.0	1385.3	1396.5	1407.7	1435.2	1462.5	1489.7	1516.7	1625.5	1736.3	1850.0	h	600
1.5558	1.5667	1.5773	1.5875	1.5974	1.6070	1.6163	1.6254	1.6343	1.6558	1.6762	1.6958	1.7147	1.7846	1.8476	1.9056	s	(486.21)
0.9807	1.0057	1.0302	1.0542	1.0778	1.1011	1.1241	1.1468	1.1693	1.2247	1.2791	1.3327	1.3858	1.5938	1.7976	1.9991	v	
1314.5	1326.7	1338.7	1350.5	1362.1	1373.5	1384.8	1396.1	1407.2	1434.8	1462.2	1489.3	1516.5	1625.3	1736.2	1849.9	h	610
1.5534	1.5644	1.5750	1.5853	1.5952	1.6048	1.6142	1.6233	1.6323	1.6538	1.6742	1.6939	1.7128	1.7827	1.8457	1.9038	s	(487.99)
0.9633	0.9880	1.0121	1.0358	1.0591	1.0821	1.1048	1.1272	1.1494	1.2040	1.2577	1.3105	1.3628	1.5676	1.7683	1.9667	v	
1313.7	1326.0	1338.0	1349.9	1361.5	1373.0	1384.3	1395.6	1406.8	1434.4	1461.8	1489.0	1516.2	1625.1	1736.0	1849.8	h	620
1.5511	1.5622	1.5728	1.5831	1.5931	1.6027	1.6121	1.6213	1.6302	1.6517	1.6722	1.6919	1.7108	1.7808	1.8438	1.9019	s	(489.75)
0.9463	0.9707	0.9946	1.0180	1.0410	1.0637	1.0861	1.1083	1.1302	1.1840	1.2369	1.2890	1.3405	1.5423	1.7399	1.9353	v	
1312.9	1325.3	1337.4	1349.2	1360.9	1372.4	1383.8	1395.1	1406.3	1434.0	1461.5	1488.7	1515.9	1624.9	1735.9	1849.6	h	630
1.5488	1.5599	1.5706	1.5809	1.5909	1.6006	1.6100	1.6192	1.6282	1.6498	1.6703	1.6900	1.7089	1.7789	1.8420	1.9001	s	(491.49)
0.9299	0.9541	0.9777	1.0008	1.0235	1.0459	1.0680	1.0899	1.1115	1.1647	1.2168	1.2681	1.3190	1.5178	1.7125	1.9048	v	
1312.2	1324.6	1336.7	1348.6	1360.4	1371.9	1383.3	1394.7	1405.9	1433.7	1461.1	1488.4	1515.6	1624.7	1735.7	1849.5	h	640
1.5465	1.5577	1.5684	1.5788	1.5888	1.5985	1.6080	1.6172	1.6262	1.6478	1.6684	1.6881	1.7070	1.7771	1.8402	1.8983	s	(493.21)
0.9140	0.9379	0.9612	0.9841	1.0065	1.0286	1.0505	1.0721	1.0934	1.1459	1.1973	1.2479	1.2981	1.4940	1.6858	1.8753	v	
1311.4	1323.9	1336.1	1348.0	1359.8	1371.4	1382.8	1394.2	1405.4	1433.3	1460.8	1488.1	1515.3	1624.5	1735.5	1849.4	h	650
1.5443	1.5555	1.5663	1.5767	1.5867	1.5965	1.6060	1.6152	1.6242	1.6458	1.6665	1.6862	1.7052	1.7753	1.8384	1.8966	s	(494.90)
0.8985	0.9222	0.9453	0.9679	0.9901	1.0119	1.0335	1.0548	1.0759	1.1277	1.1784	1.2283	1.2778	1.4709	1.6600	1.8467	v	
1310.6	1323.2	1335.4	1347.4	1359.2	1370.8	1382.3	1393.7	1405.0	1432.9	1460.4	1487.8	1515.0	1624.3	1735.4	1849.3	h	660
1.5420	1.5533	1.5642	1.5746	1.5847	1.5945	1.6040	1.6132	1.6222	1.6439	1.6646	1.6843	1.7034	1.7735	1.8367	1.8948	s	(496.58)
0.8835	0.9070	0.9298	0.9522	0.9741	0.9957	1.0170	1.0380	1.0589	1.1100	1.1601	1.2093	1.2581	1.4486	1.6349	1.8190	v	
1309.9	1322.4	1334.8	1346.8	1358.6	1370.3	1381.8	1393.2	1404.5	1432.5	1460.0	1487.4	1514.7	1624.1	1735.2	1849.1	h	670
1.5398	1.5512	1.5621	1.5726	1.5827	1.5925	1.6020	1.6113	1.6203	1.6421	1.6627	1.6825	1.7016	1.7718	1.8350	1.8931	s	(498.24)
0.8690	0.8922	0.9148	0.9369	0.9586	0.9800	1.0010	1.0218	1.0424	1.0928	1.1423	1.1909	1.2390	1.4269	1.6106	1.7920	v	
1309.1	1321.7	1334.1	1346.2	1358.1	1369.8	1381.3	1392.8	1404.1	1432.1	1459.7	1487.1	1514.5	1623.9	1735.1	1849.0	h	680
1.5376	1.5491	1.5600	1.5705	1.5807	1.5905	1.6001	1.6094	1.6184	1.6402	1.6609	1.6807	1.6998	1.7700	1.8333	1.8914	s	(499.88)
0.8549	0.8778	0.9002	0.9221	0.9435	0.9647	0.9856	1.0060	1.0263	1.0761	1.1250	1.1730	1.2205	1.4058	1.5870	1.7659	v	
1308.3	1321.0	1333.4	1345.6	1357.5	1369.2	1380.8	1392.3	1403.6	1431.7	1459.3	1486.8	1514.2	1623.7	1734.9	1848.9	h	690
1.5355	1.5469	1.5579	1.5685	1.5787	1.5886	1.5981	1.6075	1.6165	1.6384	1.6591	1.6789	1.6980	1.7683	1.8316	1.8898	s	(501.50)
0.8411	0.8639	0.8860	0.9077	0.9289	0.9498	0.9704	0.9907	1.0108	1.0600	1.1082	1.1556	1.2024	1.3853	1.5641	1.7405	v	
1307.5	1320.3	1332.8	1345.0	1356.9	1368.7	1380.3	1391.8	1403.2	1431.3	1459.0	1486.5	1513.9	1623.5	1734.8	1848.8	h	700
1.5333	1.5449	1.5559	1.5665	1.5767	1.5866	1.5962	1.6056	1.6147	1.6366	1.6573	1.6771	1.6963	1.7666	1.8299	1.8881	s	(503.10)
0.8278	0.8503	0.8722	0.8937	0.9147	0.9353	0.9557	0.9758	0.9956	1.0442	1.0919	1.1386	1.1849	1.3654	1.5418	1.7158	v	
1306.7	1319.6	1332.1	1344.3	1356.3	1368.1	1379.8	1391.3	1402.7	1430.9	1458.6	1486.2	1513.6	1623.3	1734.6	1848.6	h	710
1.5312	1.5428	1.5539	1.5645	1.5748	1.5847	1.5944	1.6037	1.6129	1.6348	1.6556	1.6754	1.6946	1.7650	1.8283	1.8865	s	(504.68)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 510°	520°	530°	540°	550°	560°	570°	580°	590°	600°	620°	640°	660°	680°
	v	0.0206	0.6362	0.6425	0.6586	0.6740	0.6887	0.7029	0.7166	0.7299	0.7429	0.7555	0.7678	0.7917	0.8148	0.8371	0.8588
720	h	495.3	1200.7	1204.5	1214.2	1223.4	1232.2	1240.6	1248.7	1256.5	1264.1	1271.5	1278.7	1292.5	1305.9	1318.8	1331.4
(506.25)	s	0.6963	1.4266	1.4306	1.4405	1.4499	1.4587	1.4670	1.4750	1.4827	1.4900	1.4971	1.5039	1.5168	1.5291	1.5408	1.5519
	v	0.0206	0.6270	0.6307	0.6468	0.6622	0.6768	0.6910	0.7047	0.7179	0.7308	0.7433	0.7556	0.7793	0.8021	0.8243	0.8458
730	h	497.2	1200.5	1202.7	1212.6	1221.9	1230.8	1239.3	1247.5	1255.4	1263.0	1270.4	1277.7	1291.7	1305.1	1318.1	1330.7
(507.80)	s	0.6982	1.4251	1.4275	1.4376	1.4471	1.4560	1.4645	1.4725	1.4802	1.4876	1.4947	1.5016	1.5147	1.5270	1.5387	1.5499
	v	0.0207	0.6180	0.6191	0.6353	0.6506	0.6652	0.6794	0.6930	0.7062	0.7190	0.7314	0.7436	0.7671	0.7898	0.8118	0.8331
740	h	499.0	1200.2	1200.9	1210.9	1220.4	1229.4	1238.0	1246.3	1254.2	1261.9	1269.4	1276.7	1290.8	1304.3	1317.4	1330.0
(509.34)	s	0.7001	1.4237	1.4244	1.4347	1.4443	1.4534	1.4619	1.4700	1.4778	1.4853	1.4925	1.4994	1.5125	1.5249	1.5367	1.5480
	v	0.0207	0.6093		0.6240	0.6393	0.6540	0.6680	0.6816	0.6947	0.7075	0.7198	0.7319	0.7553	0.7778	0.7996	0.8208
750	h	500.8	1200.0		1209.3	1218.8	1227.9	1236.6	1245.0	1253.0	1260.8	1268.4	1275.7	1289.9	1303.5	1316.6	1329.4
(510.86)	s	0.7019	1.4223		1.4318	1.4415	1.4507	1.4593	1.4676	1.4754	1.4830	1.4902	1.4972	1.5104	1.5229	1.5347	1.5460
	v	0.0208	0.5884		0.5970	0.6124	0.6270	0.6409	0.6544	0.6674	0.6800	0.6922	0.7041	0.7271	0.7492	0.7705	0.7912
775	h	505.3	1199.3		1205.0	1214.9	1224.3	1233.2	1241.8	1250.0	1258.0	1265.7	1273.2	1287.7	1301.5	1314.8	1327.7
(514.59)	s	0.7064	1.4188		1.4245	1.4346	1.4441	1.4530	1.4614	1.4695	1.4772	1.4846	1.4917	1.5051	1.5178	1.5298	1.5412
	v	0.0209	0.5687		0.5715	0.5869	0.6015	0.6154	0.6288	0.6416	0.6541	0.6662	0.6779	0.7006	0.7223	0.7433	0.7635
800	h	509.7	1198.6		1200.5	1210.8	1220.5	1229.8	1238.6	1247.0	1255.2	1263.1	1270.7	1285.4	1299.4	1312.9	1325.9
(518.23)	s	0.7108	1.4153		1.4172	1.4277	1.4375	1.4467	1.4553	1.4636	1.4715	1.4790	1.4863	1.5000	1.5129	1.5250	1.5366
	v	0.0210	0.5502			0.5628	0.5774	0.5913	0.6046	0.6174	0.6297	0.6417	0.6533	0.6757	0.6971	0.7176	0.7375
825	h	514.0	1197.9			1206.6	1216.7	1226.2	1235.3	1243.9	1252.3	1260.3	1268.1	1283.1	1297.3	1311.0	1324.2
(521.79)	s	0.7151	1.4119			1.4208	1.4309	1.4404	1.4493	1.4578	1.4658	1.4735	1.4809	1.4949	1.5080	1.5203	1.5320
	v	0.0211	0.5327			0.5400	0.5546	0.5685	0.5818	0.5945	0.6067	0.6186	0.6301	0.6521	0.6732	0.6934	0.7130
850	h	518.3	1197.1			1202.3	1212.7	1222.5	1231.9	1240.8	1249.3	1257.5	1265.5	1280.7	1295.2	1309.0	1322.4
(525.26)	s	0.7194	1.4085			1.4138	1.4243	1.4341	1.4433	1.4520	1.4602	1.4681	1.4756	1.4899	1.5032	1.5157	1.5275
	v	0.0211	0.5162			0.5183	0.5330	0.5469	0.5601	0.5728	0.5850	0.5967	0.6081	0.6299	0.6507	0.6706	0.6898
875	h	522.5	1196.3			1197.8	1208.6	1218.8	1228.4	1237.6	1246.3	1254.7	1262.8	1278.4	1293.1	1307.1	1320.6
(528.66)	s	0.7235	1.4052			1.4068	1.4177	1.4278	1.4373	1.4462	1.4547	1.4627	1.4704	1.4849	1.4984	1.5111	1.5231
	v	0.0212	0.5006				0.5124	0.5264	0.5396	0.5522	0.5644	0.5760	0.5873	0.6089	0.6294	0.6491	0.6680
900	h	526.6	1195.4				1204.4	1215.0	1224.9	1234.3	1243.2	1251.8	1260.1	1275.9	1290.9	1305.1	1318.8
(531.98)	s	0.7275	1.4020				1.4111	1.4216	1.4313	1.4405	1.4492	1.4574	1.4653	1.4800	1.4938	1.5066	1.5187
	v	0.0213	0.4858				0.4928	0.5068	0.5201	0.5327	0.5448	0.5564	0.5676	0.5890	0.6093	0.6286	0.6473
925	h	530.6	1194.6				1200.1	1211.0	1221.2	1230.9	1240.1	1248.9	1257.4	1273.5	1288.7	1303.1	1317.0
(535.24)	s	0.7315	1.3989				1.4044	1.4153	1.4253	1.4348	1.4437	1.4521	1.4602	1.4752	1.4892	1.5022	1.5144
	v	0.0214	0.4717				0.4740	0.4882	0.5015	0.5141	0.5262	0.5377	0.5489	0.5701	0.5901	0.6092	0.6276
950	h	534.6	1193.7				1195.5	1206.9	1217.5	1227.4	1236.9	1245.9	1254.6	1271.0	1286.4	1301.1	1315.2
(538.42)	s	0.7354	1.3958				1.3976	1.4089	1.4194	1.4291	1.4382	1.4469	1.4551	1.4704	1.4846	1.4978	1.5103
	v	0.0215	0.4583					0.4703	0.4837	0.4964	0.5084	0.5199	0.5310	0.5521	0.5720	0.5908	0.6089
975	h	538.5	1192.8					1202.7	1213.6	1223.9	1233.6	1242.9	1251.7	1268.5	1284.2	1299.1	1313.3
(541.55)	s	0.7393	1.3927					1.4026	1.4134	1.4234	1.4328	1.4416	1.4500	1.4657	1.4801	1.4935	1.5061
	v	0.0216	0.4456					0.4533	0.4668	0.4795	0.4915	0.5030	0.5140	0.5350	0.5546	0.5733	0.5912
1000	h	542.4	1191.8					1198.3	1209.7	1220.3	1230.3	1239.8	1248.8	1265.9	1281.9	1297.0	1311.4
(544.61)	s	0.7430	1.3897					1.3961	1.4073	1.4177	1.4273	1.4364	1.4450	1.4610	1.4757	1.4893	1.5021
	v	0.0218	0.4218						0.4349	0.4477	0.4598	0.4713	0.4823	0.5030	0.5224	0.5407	0.5582
1050	h	550.0	1189.9						1201.5	1212.8	1223.4	1233.4	1242.9	1260.7	1277.2	1292.8	1307.6
(550.57)	s	0.7504	1.3838						1.3952	1.4062	1.4165	1.4260	1.4350	1.4517	1.4669	1.4809	1.4940
	v	0.0220	0.4001						0.4053	0.4184	0.4307	0.4422	0.4532	0.4738	0.4929	0.5110	0.5281
1100	h	557.4	1187.8						1192.6	1204.8	1216.1	1226.7	1236.7	1255.3	1272.4	1288.5	1303.7
(556.31)	s	0.7575	1.3780						1.3827	1.3946	1.4055	1.4156	1.4251	1.4425	1.4583	1.4728	1.4862
	v	0.0221	0.3802							0.3912	0.4037	0.4154	0.4264	0.4470	0.4659	0.4837	0.5005
1150	h	564.6	1185.6							1196.3	1208.5	1219.7	1230.2	1249.6	1267.5	1284.1	1299.8
(561.86)	s	0.7644	1.3723							1.3828	1.3944	1.4052	1.4152	1.4334	1.4497	1.4647	1.4786
	v	0.0223	0.3619							0.3657	0.3786	0.3905	0.4016	0.4222	0.4410	0.4586	0.4752
1200	h	571.7	1183.4							1187.2	1200.4	1212.4	1223.5	1243.9	1262.4	1279.6	1295.7
(567.22)	s	0.7711	1.3667							1.3705	1.3832	1.3947	1.4052	1.4243	1.4413	1.4568	1.4710

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
700°	720°	740°	760°	780°	800°	820°	840°	860°	880°	900°	1000°	1100°	1200°	1400°	1600°		
0.8801	0.9008	0.9213	0.9414	0.9613	0.9809	1.0003	1.0194	1.0384	1.0573	1.0760	1.1679	1.2577	1.3461	1.5201	1.6918	v	
1343.7	1355.7	1367.6	1379.3	1390.8	1402.3	1413.6	1424.9	1436.1	1447.2	1458.3	1513.3	1568.1	1623.1	1734.4	1848.5	h	**720**
1.5626	1.5729	1.5828	1.5925	1.6019	1.6110	1.6200	1.6287	1.6372	1.6456	1.6538	1.6929	1.7292	1.7634	1.8267	1.8850	s	(506.25)
0.8668	0.8874	0.9076	0.9275	0.9472	0.9666	0.9857	1.0047	1.0235	1.0421	1.0606	1.1514	1.2400	1.3273	1.4990	1.6685	v	
1343.1	1355.2	1367.1	1378.8	1390.4	1401.8	1413.2	1424.5	1435.7	1446.8	1457.9	1513.0	1567.9	1622.9	1734.3	1848.4	h	**730**
1.5606	1.5710	1.5810	1.5907	1.6001	1.6092	1.6182	1.6269	1.6355	1.6439	1.6521	1.6912	1.7275	1.7617	1.8251	1.8834	s	(507.80)
0.8539	0.8743	0.8943	0.9140	0.9334	0.9526	0.9716	0.9903	1.0089	1.0273	1.0456	1.1352	1.2228	1.3090	1.4785	1.6457	v	
1342.4	1354.6	1366.5	1378.3	1389.9	1401.4	1412.7	1424.0	1435.3	1446.4	1457.6	1512.7	1567.6	1622.7	1734.1	1848.3	h	**740**
1.5587	1.5691	1.5791	1.5888	1.5983	1.6075	1.6164	1.6252	1.6338	1.6422	1.6504	1.6896	1.7259	1.7602	1.8236	1.8818	s	(509.34)
0.8414	0.8615	0.8813	0.9008	0.9201	0.9391	0.9578	0.9763	0.9947	1.0129	1.0310	1.1196	1.2061	1.2912	1.4586	1.6236	v	
1341.8	1354.0	1366.0	1377.7	1389.4	1400.9	1412.3	1423.6	1434.9	1446.1	1457.2	1512.4	1567.4	1622.4	1734.0	1848.1	h	**750**
1.5568	1.5672	1.5773	1.5870	1.5965	1.6057	1.6147	1.6235	1.6321	1.6405	1.6487	1.6879	1.7243	1.7586	1.8220	1.8803	s	(510.86)
0.8114	0.8311	0.8505	0.8695	0.8882	0.9067	0.9249	0.9429	0.9608	0.9785	0.9961	1.0821	1.1661	1.2486	1.4109	1.5709	v	
1340.2	1352.5	1364.6	1376.5	1388.2	1399.8	1411.2	1422.6	1433.9	1445.1	1456.3	1511.7	1566.8	1621.9	1733.6	1847.8	h	**775**
1.5522	1.5627	1.5728	1.5826	1.5922	1.6014	1.6105	1.6193	1.6279	1.6364	1.6446	1.6840	1.7204	1.7547	1.8182	1.8766	s	(514.59)
0.7833	0.8026	0.8215	0.8400	0.8583	0.8763	0.8941	0.9116	0.9290	0.9462	0.9633	1.0470	1.1286	1.2088	1.3662	1.5214	v	
1338.6	1351.0	1363.2	1375.2	1387.0	1398.6	1410.1	1421.6	1432.9	1444.2	1455.4	1511.0	1566.2	1621.4	1733.2	1847.5	h	**800**
1.5476	1.5582	1.5684	1.5783	1.5879	1.5972	1.6063	1.6152	1.6238	1.6323	1.6407	1.6801	1.7166	1.7510	1.8146	1.8729	s	(518.23)
0.7569	0.7757	0.7942	0.8123	0.8302	0.8478	0.8651	0.8822	0.8991	0.9159	0.9326	1.0141	1.0934	1.1713	1.3243	1.4749	v	
1337.0	1349.5	1361.8	1373.8	1385.7	1397.4	1409.0	1420.5	1431.9	1443.3	1454.5	1510.3	1565.6	1620.9	1732.8	1847.2	h	**825**
1.5431	1.5538	1.5642	1.5741	1.5838	1.5931	1.6023	1.6112	1.6199	1.6284	1.6368	1.6763	1.7130	1.7474	1.8110	1.8694	s	(521.79)
0.7320	0.7505	0.7685	0.7863	0.8037	0.8209	0.8378	0.8545	0.8711	0.8874	0.9037	0.9830	1.0603	1.1360	1.2848	1.4311	v	
1335.4	1348.0	1360.4	1372.5	1384.5	1396.3	1407.9	1419.5	1430.9	1442.3	1453.6	1509.5	1564.9	1620.4	1732.4	1846.9	h	**850**
1.5388	1.5496	1.5600	1.5700	1.5797	1.5892	1.5983	1.6073	1.6160	1.6246	1.6330	1.6727	1.7094	1.7438	1.8075	1.8660	s	(525.26)
0.7085	0.7266	0.7443	0.7617	0.7788	0.7955	0.8121	0.8284	0.8446	0.8605	0.8764	0.9538	1.0290	1.1028	1.2475	1.3899	v	
1333.8	1346.5	1359.0	1371.2	1383.2	1395.1	1406.8	1418.4	1429.9	1441.4	1452.7	1508.8	1564.3	1619.9	1732.0	1846.6	h	**875**
1.5345	1.5454	1.5559	1.5660	1.5758	1.5853	1.5945	1.6035	1.6123	1.6209	1.6293	1.6691	1.7059	1.7404	1.8042	1.8627	s	(528.66)
0.6863	0.7041	0.7215	0.7385	0.7552	0.7716	0.7878	0.8038	0.8195	0.8351	0.8506	0.9262	0.9995	1.0714	1.2124	1.3509	v	
1332.1	1345.0	1357.5	1369.9	1382.0	1393.9	1405.7	1417.4	1428.9	1440.4	1451.8	1508.1	1563.7	1619.3	1731.6	1846.3	h	**900**
1.5303	1.5413	1.5519	1.5620	1.5719	1.5814	1.5907	1.5998	1.6086	1.6172	1.6257	1.6656	1.7025	1.7371	1.8009	1.8595	s	(531.98)
0.6653	0.6828	0.6998	0.7165	0.7329	0.7490	0.7648	0.7804	0.7958	0.8111	0.8262	0.9000	0.9716	1.0417	1.1791	1.3141	v	
1330.4	1343.4	1356.1	1368.5	1380.7	1392.7	1404.6	1416.3	1427.9	1439.5	1450.9	1507.3	1563.1	1618.8	1731.2	1845.9	h	**925**
1.5261	1.5372	1.5479	1.5582	1.5681	1.5777	1.5871	1.5962	1.6050	1.6137	1.6222	1.6622	1.6992	1.7338	1.7977	1.8563	s	(535.24)
0.6453	0.6625	0.6793	0.6957	0.7117	0.7275	0.7430	0.7583	0.7734	0.7883	0.8031	0.8753	0.9451	1.0136	1.1476	1.2792	v	
1328.7	1341.9	1354.7	1367.2	1379.5	1391.6	1403.5	1415.3	1426.9	1438.5	1450.0	1506.6	1562.5	1618.3	1730.8	1845.6	h	**950**
1.5221	1.5333	1.5440	1.5544	1.5644	1.5741	1.5835	1.5926	1.6015	1.6102	1.6187	1.6589	1.6959	1.7306	1.7946	1.8532	s	(538.42)
0.6264	0.6433	0.6598	0.6759	0.6916	0.7071	0.7223	0.7373	0.7521	0.7667	0.7812	0.8518	0.9200	0.9869	1.1177	1.2461	v	
1327.0	1340.3	1353.2	1365.8	1378.2	1390.4	1402.3	1414.2	1425.9	1437.6	1449.1	1505.9	1561.9	1617.8	1730.4	1845.3	h	**975**
1.5180	1.5294	1.5403	1.5507	1.5607	1.5705	1.5799	1.5891	1.5981	1.6068	1.6154	1.6557	1.6928	1.7275	1.7916	1.8503	s	(541.55)
0.6084	0.6251	0.6413	0.6571	0.6726	0.6878	0.7027	0.7173	0.7318	0.7462	0.7604	0.8294	0.8962	0.9615	1.0893	1.2146	v	
1325.3	1338.7	1351.7	1364.4	1376.9	1389.2	1401.2	1413.1	1424.9	1436.6	1448.2	1505.1	1561.3	1617.3	1730.0	1845.0	h	**1000**
1.5141	1.5256	1.5365	1.5470	1.5572	1.5670	1.5765	1.5857	1.5947	1.6035	1.6121	1.6525	1.6897	1.7245	1.7886	1.8474	s	(544.61)
0.5750	0.5911	0.6069	0.6222	0.6371	0.6518	0.6662	0.6803	0.6943	0.7081	0.7217	0.7880	0.8519	0.9144	1.0365	1.1562	v	
1321.8	1335.5	1348.8	1361.7	1374.3	1386.7	1398.9	1411.0	1422.9	1434.7	1446.3	1503.7	1560.0	1616.2	1729.2	1844.4	h	**1050**
1.5064	1.5181	1.5292	1.5399	1.5502	1.5601	1.5698	1.5791	1.5882	1.5970	1.6057	1.6464	1.6837	1.7186	1.7829	1.8417	s	(550.57)
0.5445	0.5602	0.5755	0.5904	0.6049	0.6191	0.6329	0.6466	0.6601	0.6734	0.6866	0.7503	0.8117	0.8716	0.9885	1.1031	v	
1318.3	1332.2	1345.8	1358.9	1371.7	1384.3	1396.6	1408.8	1420.8	1432.7	1444.5	1502.2	1558.8	1615.2	1728.4	1843.8	h	**1100**
1.4989	1.5108	1.5222	1.5330	1.5435	1.5535	1.5633	1.5727	1.5819	1.5908	1.5995	1.6405	1.6780	1.7130	1.7775	1.8363	s	(556.31)
0.5166	0.5320	0.5469	0.5613	0.5754	0.5892	0.6026	0.6158	0.6289	0.6418	0.6544	0.7158	0.7749	0.8325	0.9447	1.0547	v	
1314.7	1328.9	1342.7	1356.1	1369.1	1381.8	1394.3	1406.6	1418.8	1430.7	1442.6	1500.7	1557.6	1614.1	1727.7	1843.1	h	**1150**
1.4915	1.5037	1.5153	1.5263	1.5369	1.5471	1.5570	1.5665	1.5758	1.5848	1.5936	1.6348	1.6725	1.7076	1.7722	1.8312	s	(561.86)
0.4909	0.5060	0.5206	0.5347	0.5484	0.5617	0.5748	0.5876	0.6003	0.6127	0.6250	0.6843	0.7412	0.7967	0.9046	1.0101	v	
1311.0	1325.6	1339.6	1353.2	1366.4	1379.3	1392.0	1404.4	1416.7	1428.8	1440.7	1499.2	1556.4	1613.1	1726.9	1842.5	h	**1200**
1.4843	1.4968	1.5086	1.5198	1.5306	1.5409	1.5509	1.5605	1.5699	1.5790	1.5879	1.6293	1.6672	1.7025	1.7672	1.8263	s	(567.22)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 580°	590°	600°	610°	620°	630°	640°	650°	660°	670°	680°	690°	700°	720°
	v	0.0225	0.3450	0.3551	0.3672	0.3785	0.3891	0.3992	0.4088	0.4180	0.4269	0.4354	0.4437	0.4518	0.4597	0.4673	0.4821
1250	h	578.6	1181.0	1191.7	1204.6	1216.5	1227.5	1237.9	1247.8	1257.2	1266.3	1275.0	1283.4	1291.5	1299.5	1307.2	1322.1
(572.42)	s	0.7776	1.3612	1.3716	1.3839	1.3951	1.4055	1.4152	1.4243	1.4329	1.4411	1.4489	1.4564	1.4636	1.4706	1.4773	1.4900
	v	0.0227	0.3293	0.3328	0.3454	0.3569	0.3677	0.3778	0.3874	0.3966	0.4054	0.4139	0.4222	0.4301	0.4379	0.4454	0.4600
1300	h	585.4	1178.6	1182.4	1196.4	1209.0	1220.7	1231.6	1242.0	1251.8	1261.2	1270.2	1278.9	1287.3	1295.4	1303.4	1318.6
(577.46)	s	0.7840	1.3559	1.3596	1.3730	1.3850	1.3959	1.4061	1.4156	1.4246	1.4331	1.4412	1.4489	1.4563	1.4634	1.4703	1.4834
	v	0.0229	0.3148		0.3247	0.3366	0.3476	0.3578	0.3675	0.3767	0.3855	0.3939	0.4021	0.4100	0.4176	0.4251	0.4394
1350	h	592.1	1176.1		1187.6	1201.2	1213.6	1225.1	1236.0	1246.2	1256.0	1265.3	1274.3	1282.9	1291.3	1299.5	1315.1
(582.35)	s	0.7902	1.3506		1.3616	1.3746	1.3862	1.3969	1.4069	1.4163	1.4251	1.4335	1.4415	1.4491	1.4564	1.4635	1.4768
	v	0.0231	0.3012		0.3050	0.3174	0.3286	0.3390	0.3488	0.3580	0.3668	0.3753	0.3834	0.3912	0.3988	0.4062	0.4203
1400	h	598.7	1173.4		1178.1	1193.0	1206.2	1218.4	1229.8	1240.4	1250.6	1260.3	1269.6	1278.5	1287.1	1295.5	1311.5
(587.10)	s	0.7963	1.3454		1.3498	1.3639	1.3764	1.3877	1.3982	1.4079	1.4171	1.4258	1.4341	1.4419	1.4495	1.4567	1.4704
	v	0.0233	0.2884			0.2991	0.3107	0.3213	0.3312	0.3405	0.3493	0.3578	0.3658	0.3736	0.3812	0.3885	0.4025
1450	h	605.2	1170.7			1184.1	1198.4	1211.3	1223.3	1234.5	1245.0	1255.1	1264.7	1273.9	1282.8	1291.4	1307.8
(591.73)	s	0.8023	1.3402			1.3528	1.3663	1.3784	1.3894	1.3996	1.4092	1.4182	1.4267	1.4348	1.4426	1.4500	1.4641
	v	0.0235	0.2765			0.2815	0.2936	0.3045	0.3146	0.3240	0.3329	0.3413	0.3494	0.3572	0.3647	0.3719	0.3857
1500	h	611.6	1167.9			1174.5	1190.1	1203.9	1216.6	1228.3	1239.3	1249.8	1259.7	1269.3	1278.4	1287.2	1304.1
(596.23)	s	0.8082	1.3351			1.3412	1.3559	1.3688	1.3805	1.3912	1.4012	1.4105	1.4194	1.4278	1.4358	1.4434	1.4578
	v	0.0239	0.2548				0.2614	0.2733	0.2839	0.2936	0.3027	0.3112	0.3193	0.3271	0.3345	0.3417	0.3553
1600	h	624.1	1162.1				1171.5	1187.8	1202.2	1215.2	1227.3	1238.7	1249.4	1259.6	1269.3	1278.7	1296.4
(604.90)	s	0.8196	1.3249				1.3337	1.3489	1.3622	1.3741	1.3850	1.3952	1.4047	1.4137	1.4222	1.4303	1.4455
	v	0.0243	0.2354					0.2443	0.2558	0.2661	0.2755	0.2842	0.2924	0.3002	0.3077	0.3148	0.3283
1700	h	636.3	1155.9					1169.2	1186.1	1201.0	1214.4	1226.8	1238.4	1249.3	1259.7	1269.7	1288.4
(613.15)	s	0.8306	1.3149					1.3273	1.3429	1.3564	1.3686	1.3797	1.3900	1.3997	1.4087	1.4173	1.4333
	v	0.0247	0.2179						0.2296	0.2407	0.2506	0.2597	0.2681	0.2760	0.2835	0.2907	0.3041
1800	h	648.3	1149.4						1167.7	1185.1	1200.3	1214.0	1226.7	1238.5	1249.7	1260.3	1280.1
(621.03)	s	0.8412	1.3049						1.3219	1.3377	1.3515	1.3638	1.3751	1.3855	1.3952	1.4044	1.4213
	v	0.0252	0.2021						0.2040	0.2168	0.2276	0.2371	0.2459	0.2540	0.2616	0.2688	0.2823
1900	h	660.1	1142.4						1145.8	1167.0	1184.7	1200.2	1214.2	1227.1	1239.1	1250.4	1271.4
(628.58)	s	0.8516	1.2949						1.2981	1.3174	1.3335	1.3474	1.3598	1.3711	1.3816	1.3915	1.4094
	v	0.0257	0.1878							0.1936	0.2058	0.2161	0.2253	0.2337	0.2415	0.2489	0.2624
2000	h	671.7	1135.1							1145.6	1167.0	1184.9	1200.6	1214.8	1227.8	1240.0	1262.3
(635.82)	s	0.8619	1.2849							1.2945	1.3139	1.3300	1.3439	1.3564	1.3678	1.3783	1.3974
	v	0.0262	0.1746								0.1846	0.1962	0.2061	0.2150	0.2231	0.2306	0.2443
2100	h	683.3	1127.4								1146.3	1167.7	1185.8	1201.6	1215.9	1229.0	1252.9
(642.77)	s	0.8721	1.2748								1.2919	1.3112	1.3272	1.3412	1.3536	1.3651	1.3855
	v	0.0268	0.1625								0.1633	0.1768	0.1879	0.1973	0.2058	0.2135	0.2275
2200	h	694.8	1119.2								1121.0	1147.8	1169.1	1187.1	1203.0	1217.4	1243.0
(649.46)	s	0.8820	1.2646								1.2665	1.2903	1.3093	1.3252	1.3390	1.3515	1.3734
	v	0.0274	0.1513									0.1575	0.1702	0.1806	0.1897	0.1978	0.2121
2300	h	706.5	1110.4									1123.8	1150.0	1171.1	1189.1	1204.9	1232.6
(655.91)	s	0.8921	1.2541									1.2661	1.2895	1.3080	1.3237	1.3375	1.3611
	v	0.0280	0.1407										0.1526	0.1644	0.1742	0.1828	0.1977
2400	h	718.4	1101.1										1128.2	1152.9	1173.7	1191.5	1221.6
(662.12)	s	0.9023	1.2434										1.2673	1.2893	1.3074	1.3228	1.3486
	v	0.0287	0.1307										0.1342	0.1484	0.1594	0.1686	0.1841
2500	h	730.6	1091.1										1099.8	1132.3	1156.6	1176.8	1210.0
(668.13)	s	0.9126	1.2322										1.2400	1.2687	1.2899	1.3073	1.3357
	v	0.0295	0.1213											0.1319	0.1447	0.1549	0.1714
2600	h	743.0	1080.2											1107.1	1137.3	1160.6	1197.5
(673.94)	s	0.9232	1.2205											1.2443	1.2706	1.2908	1.3224
	v	0.0305	0.1123											0.1137	0.1299	0.1415	0.1592
2700	h	756.2	1068.3											1072.8	1114.3	1142.5	1184.1
(679.55)	s	0.9342	1.2082											1.2122	1.2484	1.2728	1.3085

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)	
740°	760°	780°	800°	820°	840°	860°	880°	900°	950°	1000°	1050°	1100°	1200°	1400°	1600°		
0.4963	0.5101	0.5235	0.5365	0.5492	0.5617	0.5740	0.5860	0.5979	0.6269	0.6552	0.6830	0.7102	0.7637	0.8677	0.9692	v	
1336.5	1350.3	1363.7	1376.8	1389.6	1402.2	1414.6	1426.8	1438.9	1468.5	1497.7	1526.5	1555.1	1612.0	1726.1	1841.9	h	1250
1.5021	1.5135	1.5244	1.5349	1.5450	1.5547	1.5642	1.5734	1.5823	1.6037	1.6241	1.6435	1.6621	1.6975	1.7624	1.8215	s	(572.42)
0.4739	0.4874	0.5004	0.5131	0.5255	0.5377	0.5496	0.5613	0.5728	0.6010	0.6284	0.6553	0.6816	0.7333	0.8336	0.9314	v	
1333.3	1347.3	1361.0	1374.3	1387.2	1400.0	1412.5	1424.8	1437.0	1466.9	1496.2	1525.1	1553.9	1611.0	1725.3	1841.3	h	1300
1.4957	1.5073	1.5184	1.5290	1.5392	1.5491	1.5587	1.5679	1.5769	1.5985	1.6190	1.6385	1.6572	1.6927	1.7577	1.8169	s	(577.46)
0.4531	0.4664	0.4791	0.4915	0.5036	0.5155	0.5271	0.5385	0.5496	0.5770	0.6036	0.6296	0.6551	0.7051	0.8020	0.8965	v	
1330.0	1344.3	1358.2	1371.7	1384.8	1397.7	1410.3	1422.8	1435.1	1465.2	1494.7	1523.8	1552.6	1609.9	1724.5	1840.6	h	1350
1.4894	1.5012	1.5125	1.5233	1.5336	1.5436	1.5533	1.5626	1.5717	1.5935	1.6140	1.6336	1.6524	1.6881	1.7532	1.8125	s	(582.35)
0.4338	0.4468	0.4593	0.4714	0.4833	0.4948	0.5061	0.5172	0.5281	0.5547	0.5805	0.6058	0.6305	0.6789	0.7727	0.8640	v	
1326.7	1341.3	1355.4	1369.1	1382.4	1395.4	1408.2	1420.8	1433.1	1463.5	1493.2	1522.4	1551.4	1608.9	1723.7	1840.0	h	1400
1.4832	1.4953	1.5068	1.5177	1.5282	1.5383	1.5480	1.5575	1.5666	1.5886	1.6093	1.6289	1.6478	1.6836	1.7489	1.8083	s	(587.10)
0.4157	0.4285	0.4408	0.4527	0.4643	0.4756	0.4866	0.4974	0.5080	0.5339	0.5591	0.5836	0.6076	0.6545	0.7454	0.8338	v	
1323.4	1338.3	1352.6	1366.5	1380.0	1393.1	1406.0	1418.7	1431.2	1461.8	1491.6	1521.0	1550.1	1607.8	1722.9	1839.4	h	1450
1.4772	1.4895	1.5011	1.5122	1.5228	1.5330	1.5429	1.5524	1.5617	1.5838	1.6046	1.6244	1.6434	1.6792	1.7447	1.8042	s	(591.73)
0.3989	0.4114	0.4235	0.4352	0.4465	0.4576	0.4684	0.4789	0.4893	0.5146	0.5390	0.5629	0.5862	0.6318	0.7199	0.8056	v	
1320.0	1335.2	1349.7	1363.8	1377.5	1390.8	1403.9	1416.7	1429.3	1460.1	1490.1	1519.6	1548.9	1606.8	1722.1	1838.8	h	1500
1.4712	1.4837	1.4956	1.5068	1.5176	1.5279	1.5379	1.5475	1.5569	1.5791	1.6001	1.6200	1.6390	1.6750	1.7406	1.8002	s	(596.23)
0.3682	0.3804	0.3921	0.4034	0.4144	0.4250	0.4353	0.4454	0.4553	0.4794	0.5027	0.5253	0.5474	0.5906	0.6738	0.7545	v	
1313.0	1328.8	1343.9	1358.4	1372.5	1386.1	1399.5	1412.5	1425.3	1456.6	1487.0	1516.9	1546.4	1604.6	1720.5	1837.5	h	1600
1.4595	1.4725	1.4848	1.4964	1.5075	1.5181	1.5283	1.5381	1.5476	1.5702	1.5914	1.6115	1.6307	1.6669	1.7328	1.7926	s	(604.90)
0.3410	0.3529	0.3643	0.3753	0.3859	0.3961	0.4061	0.4158	0.4253	0.4484	0.4706	0.4922	0.5132	0.5542	0.6330	0.7094	v	
1305.8	1322.3	1337.9	1352.9	1367.3	1381.3	1395.0	1408.3	1421.4	1453.2	1484.0	1514.1	1543.8	1602.5	1718.9	1836.2	h	1700
1.4480	1.4616	1.4743	1.4863	1.4977	1.5086	1.5190	1.5290	1.5387	1.5616	1.5831	1.6034	1.6228	1.6592	1.7255	1.7854	s	(613.15)
0.3166	0.3284	0.3395	0.3502	0.3605	0.3705	0.3801	0.3895	0.3986	0.4208	0.4421	0.4627	0.4828	0.5218	0.5968	0.6693	v	
1298.4	1315.5	1331.8	1347.2	1362.1	1376.5	1390.4	1404.1	1417.4	1449.7	1480.8	1511.3	1541.3	1600.4	1717.3	1835.0	h	1800
1.4367	1.4509	1.4641	1.4765	1.4882	1.4994	1.5100	1.5203	1.5301	1.5534	1.5752	1.5957	1.6153	1.6520	1.7185	1.7786	s	(621.03)
0.2947	0.3063	0.3173	0.3277	0.3378	0.3474	0.3568	0.3659	0.3747	0.3961	0.4165	0.4363	0.4556	0.4929	0.5644	0.6334	v	
1290.6	1308.6	1325.4	1341.5	1356.8	1371.5	1385.8	1399.7	1413.3	1446.1	1477.7	1508.5	1538.8	1598.2	1715.7	1833.7	h	1900
1.4256	1.4404	1.4541	1.4669	1.4790	1.4904	1.5014	1.5118	1.5219	1.5456	1.5676	1.5883	1.6081	1.6450	1.7118	1.7721	s	(628.58)
0.2748	0.2863	0.2972	0.3074	0.3172	0.3267	0.3358	0.3446	0.3532	0.3738	0.3935	0.4126	0.4311	0.4668	0.5352	0.6011	v	
1282.6	1301.4	1319.0	1335.5	1351.3	1366.5	1381.2	1395.3	1409.2	1442.5	1474.5	1505.7	1536.2	1596.1	1714.1	1832.5	h	2000
1.4145	1.4300	1.4443	1.4576	1.4700	1.4818	1.4930	1.5036	1.5139	1.5380	1.5603	1.5813	1.6012	1.6384	1.7055	1.7660	s	(635.82)
0.2567	0.2682	0.2789	0.2890	0.2986	0.3078	0.3167	0.3253	0.3337	0.3537	0.3727	0.3911	0.4089	0.4433	0.5088	0.5719	v	
1274.3	1294.0	1312.3	1329.5	1345.8	1361.4	1376.4	1390.9	1405.0	1438.9	1471.4	1502.9	1533.6	1593.9	1712.5	1831.2	h	2100
1.4035	1.4197	1.4346	1.4484	1.4612	1.4733	1.4848	1.4957	1.5062	1.5306	1.5533	1.5745	1.5945	1.6320	1.6995	1.7601	s	(642.77)
0.2400	0.2514	0.2621	0.2721	0.2816	0.2907	0.2994	0.3078	0.3159	0.3354	0.3538	0.3715	0.3887	0.4218	0.4849	0.5453	v	
1265.7	1286.3	1305.4	1323.3	1340.1	1356.2	1371.5	1386.4	1400.8	1435.3	1468.2	1500.0	1531.1	1591.8	1710.9	1830.0	h	2200
1.3925	1.4095	1.4250	1.4393	1.4526	1.4650	1.4768	1.4880	1.4986	1.5235	1.5465	1.5679	1.5881	1.6259	1.6937	1.7545	s	(649.46)
0.2247	0.2362	0.2468	0.2567	0.2661	0.2750	0.2835	0.2917	0.2997	0.3186	0.3365	0.3537	0.3703	0.4023	0.4630	0.5211	v	
1256.7	1278.4	1298.4	1316.9	1334.3	1350.8	1366.6	1381.8	1396.5	1431.6	1464.9	1497.1	1528.5	1589.6	1709.3	1828.7	h	2300
1.3814	1.3994	1.4156	1.4304	1.4441	1.4569	1.4690	1.4804	1.4913	1.5166	1.5399	1.5615	1.5820	1.6200	1.6881	1.7491	s	(655.91)
0.2105	0.2221	0.2327	0.2425	0.2518	0.2606	0.2689	0.2770	0.2848	0.3033	0.3207	0.3373	0.3534	0.3843	0.4429	0.4988	v	
1247.3	1270.2	1291.1	1310.3	1328.4	1345.4	1361.6	1377.2	1392.2	1427.9	1461.7	1494.2	1525.9	1587.4	1707.7	1827.4	h	2400
1.3702	1.3892	1.4061	1.4215	1.4357	1.4489	1.4613	1.4730	1.4842	1.5099	1.5335	1.5554	1.5760	1.6143	1.6827	1.7439	s	(662.12)
0.1973	0.2090	0.2196	0.2294	0.2386	0.2473	0.2555	0.2634	0.2710	0.2891	0.3061	0.3222	0.3379	0.3678	0.4244	0.4784	v	
1237.6	1261.8	1283.6	1303.6	1322.3	1339.9	1356.5	1372.5	1387.8	1424.2	1458.4	1491.3	1523.2	1585.3	1706.1	1826.2	h	2500
1.3589	1.3789	1.3967	1.4127	1.4274	1.4411	1.4538	1.4658	1.4772	1.5034	1.5273	1.5495	1.5702	1.6088	1.6775	1.7389	s	(668.13)
0.1849	0.1967	0.2074	0.2172	0.2263	0.2349	0.2431	0.2509	0.2584	0.2760	0.2926	0.3083	0.3236	0.3526	0.4074	0.4595	v	
1227.3	1252.9	1275.8	1296.8	1316.1	1334.2	1351.4	1367.7	1383.4	1420.4	1455.1	1488.4	1520.6	1583.1	1704.4	1824.9	h	2600
1.3474	1.3686	1.3873	1.4040	1.4192	1.4333	1.4464	1.4587	1.4703	1.4970	1.5212	1.5437	1.5646	1.6035	1.6725	1.7341	s	(673.94)
0.1732	0.1853	0.1960	0.2059	0.2150	0.2235	0.2315	0.2392	0.2466	0.2639	0.2801	0.2955	0.3103	0.3385	0.3916	0.4420	v	
1216.5	1243.8	1267.9	1289.7	1309.7	1328.5	1346.1	1362.9	1378.9	1416.6	1451.8	1485.5	1518.0	1580.9	1702.8	1823.7	h	2700
1.3357	1.3582	1.3778	1.3953	1.4111	1.4256	1.4391	1.4517	1.4635	1.4908	1.5154	1.5380	1.5592	1.5983	1.6677	1.7294	s	(679.55)

Table 3. Superheated Vapor

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Sat. Liquid	Sat. Vapor	Temperature—Degrees Fahrenheit 690°	700°	710°	720°	730°	740°	750°	760°	770°	780°	790°	800°	820°
	v	0.0315	0.1035	0.1141	0.1281	0.1387	0.1475	0.1553	0.1622	0.1686	0.1745	0.1801	0.1854	0.1904	0.1953	0.2043
2800	h	770.1	1054.8	1085.2	1121.4	1148.0	1169.7	1188.5	1205.1	1220.3	1234.2	1247.3	1259.6	1271.3	1282.4	1303.2
(684.99)	s	0.9459	1.1946	1.2210	1.2524	1.2752	1.2938	1.3095	1.3236	1.3362	1.3477	1.3583	1.3683	1.3777	1.3865	1.4030
	v	0.0329	0.0947		0.1143	0.1266	0.1362	0.1444	0.1517	0.1583	0.1644	0.1701	0.1754	0.1805	0.1853	0.1944
2900	h	785.4	1039.0		1095.9	1128.7	1153.9	1174.8	1193.0	1209.3	1224.3	1238.1	1251.1	1263.3	1274.9	1296.6
(690.26)	s	0.9587	1.1792		1.2286	1.2568	1.2782	1.2959	1.3111	1.3246	1.3369	1.3482	1.3587	1.3685	1.3778	1.3949
	v	0.0346	0.0858		0.0984	0.1142	0.1251	0.1339	0.1416	0.1485	0.1548	0.1606	0.1660	0.1711	0.1760	0.1851
3000	h	802.5	1020.3		1060.7	1106.5	1136.1	1159.9	1180.1	1197.8	1213.8	1228.5	1242.2	1255.1	1267.2	1289.7
(695.36)	s	0.9731	1.1615		1.1966	1.2359	1.2611	1.2812	1.2981	1.3128	1.3259	1.3380	1.3490	1.3594	1.3690	1.3868
	v	0.0371	0.0753			0.1012	0.1140	0.1238	0.1320	0.1391	0.1456	0.1516	0.1571	0.1623	0.1672	0.1763
3100	h	825.0	993.1			1079.6	1115.7	1143.5	1166.2	1185.6	1202.9	1218.6	1233.0	1246.6	1259.3	1282.7
(700.31)	s	0.9919	1.1368			1.2112	1.2419	1.2654	1.2844	1.3005	1.3147	1.3275	1.3392	1.3501	1.3602	1.3787
	v	0.0444	0.0580			0.0852	0.1027	0.1138	0.1226	0.1301	0.1369	0.1430	0.1486	0.1539	0.1589	0.1681
3200	h	872.4	934.4			1037.9	1092.0	1125.2	1151.1	1172.6	1191.4	1208.2	1223.5	1237.8	1251.1	1275.6
(705.11)	s	1.0320	1.0852			1.1740	1.2201	1.2481	1.2698	1.2877	1.3031	1.3168	1.3292	1.3407	1.3513	1.3706
	v	0.0503	0.0503			0.0843	0.1020	0.1132	0.1220	0.1295	0.1363	0.1424	0.1480	0.1533	0.1583	0.1676
3206.2	h	902.7	902.7			1035.8	1090.7	1124.0	1150.2	1171.7	1190.6	1207.5	1222.9	1237.2	1250.5	1275.1
(705.40)	s	1.0580	1.0580			1.1723	1.2190	1.2471	1.2690	1.2869	1.3024	1.3162	1.3287	1.3402	1.3508	1.3701
	v			0.0293	0.0320	0.0545	0.0905	0.1037	0.1134	0.1215	0.1285	0.1348	0.1406	0.1459	0.1510	0.1602
3300	h			760.3	792.6	926.7	1062.6	1104.8	1134.6	1158.7	1179.2	1197.4	1213.6	1228.6	1242.6	1268.2
	s			0.9348	0.9628	1.0780	1.1936	1.2292	1.2542	1.2742	1.2911	1.3059	1.3191	1.3311	1.3423	1.3625
	v			0.0290	0.0312	0.0363	0.0773	0.0935	0.1042	0.1129	0.1204	0.1270	0.1329	0.1384	0.1435	0.1529
3400	h			757.4	785.9	832.8	1024.1	1081.3	1116.1	1143.6	1166.2	1185.9	1203.3	1219.2	1233.9	1260.6
	s			0.9320	0.9566	0.9969	1.1598	1.2080	1.2372	1.2600	1.2786	1.2946	1.3088	1.3215	1.3333	1.3543
	v			0.0287	0.0306	0.0342	0.0557	0.0823	0.0952	0.1047	0.1126	0.1195	0.1256	0.1312	0.1364	0.1458
3500	h			754.7	780.5	818.5	945.0	1052.4	1095.6	1127.3	1152.4	1173.7	1192.6	1209.4	1224.9	1252.9
	s			0.9291	0.9515	0.9841	1.0918	1.1825	1.2186	1.2449	1.2656	1.2829	1.2983	1.3118	1.3241	1.3462
	v			0.0285	0.0301	0.0329	0.0410	0.0701	0.0860	0.0965	0.1049	0.1121	0.1185	0.1243	0.1296	0.1392
3600	h			752.0	776.1	808.2	872.9	1013.4	1071.9	1109.5	1137.6	1160.8	1181.3	1199.2	1215.6	1244.9
	s			0.9264	0.9472	0.9748	1.0298	1.1484	1.1974	1.2286	1.2518	1.2707	1.2873	1.3017	1.3148	1.3379
	v			0.0282	0.0297	0.0320	0.0371	0.0557	0.0764	0.0885	0.0975	0.1051	0.1117	0.1177	0.1231	0.1328
3700	h			749.6	772.4	800.8	847.6	959.4	1043.7	1089.7	1121.6	1147.2	1169.4	1188.5	1205.9	1236.8
	s			0.9238	0.9436	0.9679	1.0078	1.1021	1.1727	1.2109	1.2372	1.2581	1.2760	1.2914	1.3053	1.3296
	v			0.0279	0.0293	0.0313	0.0349	0.0450	0.0664	0.0804	0.0903	0.0983	0.1052	0.1113	0.1169	0.1268
3800	h			747.4	769.2	795.5	833.8	908.2	1009.0	1067.1	1104.3	1132.9	1156.9	1177.4	1195.9	1228.4
	s			0.9214	0.9403	0.9629	0.9955	1.0583	1.1426	1.1908	1.2216	1.2449	1.2643	1.2808	1.2955	1.3211
	v			0.0277	0.0290	0.0308	0.0337	0.0400	0.0558	0.0721	0.0832	0.0917	0.0989	0.1052	0.1109	0.1210
3900	h			745.1	766.3	791.2	824.3	879.1	966.7	1040.9	1085.5	1117.5	1143.7	1165.9	1185.5	1219.7
	s			0.9190	0.9373	0.9588	0.9869	1.0331	1.1065	1.1681	1.2048	1.2310	1.2522	1.2700	1.2856	1.3126
	v			0.0275	0.0287	0.0303	0.0328	0.0373	0.0478	0.0638	0.0761	0.0852	0.0927	0.0993	0.1052	0.1155
4000	h			743.1	763.8	787.3	817.5	860.4	930.7	1010.6	1064.2	1101.1	1129.8	1153.9	1174.8	1210.7
	s			0.9168	0.9347	0.9549	0.9806	1.0168	1.0757	1.1420	1.1862	1.2163	1.2397	1.2591	1.2757	1.3040
	v			0.0267	0.0276	0.0286	0.0301	0.0320	0.0350	0.0395	0.0467	0.0561	0.0652	0.0730	0.0798	0.0911
4500	h			735.4	753.5	773.1	795.2	821.4	852.9	894.8	947.7	1000.8	1047.5	1084.3	1113.9	1162.5
	s			0.9078	0.9235	0.9403	0.9593	0.9814	1.0078	1.0426	1.0861	1.1294	1.1672	1.1968	1.2204	1.2586
	v			0.0260	0.0268	0.0276	0.0287	0.0300	0.0316	0.0337	0.0368	0.0410	0.0465	0.0527	0.0593	0.0715
5000	h			729.6	746.4	764.5	783.9	804.8	828.4	856.1	887.8	925.0	966.2	1007.6	1047.1	1108.7
	s			0.9006	0.9152	0.9307	0.9472	0.9649	0.9847	1.0076	1.0337	1.0641	1.0975	1.1307	1.1622	1.2107
	v			0.0255	0.0262	0.0269	0.0278	0.0288	0.0299	0.0313	0.0331	0.0354	0.0384	0.0420	0.0463	0.0560
5500	h			725.7	741.3	758.0	775.6	794.3	814.2	836.5	860.8	887.4	917.5	950.4	985.0	1052.8
	s			0.8955	0.9090	0.9233	0.9382	0.9540	0.9708	0.9892	1.0092	1.0309	1.0553	1.0817	1.1093	1.1627

Temperature—Degrees Fahrenheit																Abs. Press. Lb./Sq. In. (Sat. Temp.)
840°	860°	880°	900°	920°	940°	960°	980°	1000°	1050°	1100°	1150°	1200°	1400°	1600°		
0.2128	0.2208	0.2284	0.2356	0.2426	0.2494	0.2559	0.2623	0.2685	0.2835	0.2979	0.3118	0.3254	0.3769	0.4258	v	
1322.6	1340.8	1357.9	1374.3	1390.1	1405.3	1420.1	1434.4	1448.5	1482.5	1515.4	1547.3	1578.7	1701.2	1822.4	h	2800
1.4180	1.4318	1.4448	1.4569	1.4684	1.4794	1.4898	1.4999	1.5096	1.5325	1.5539	1.5741	1.5933	1.6630	1.7249	s	(684.99)
0.2028	0.2108	0.2183	0.2254	0.2323	0.2390	0.2454	0.2516	0.2577	0.2723	0.2864	0.3000	0.3132	0.3632	0.4107	v	
1316.6	1335.3	1352.9	1369.7	1385.8	1401.3	1416.3	1430.9	1445.1	1479.6	1512.7	1544.9	1576.5	1699.6	1821.1	h	2900
1.4104	1.4247	1.4379	1.4504	1.4621	1.4733	1.4839	1.4941	1.5040	1.5272	1.5487	1.5691	1.5884	1.6584	1.7205	s	(690.26)
0.1935	0.2014	0.2088	0.2159	0.2227	0.2292	0.2355	0.2416	0.2476	0.2620	0.2757	0.2890	0.3018	0.3505	0.3966	v	
1310.4	1329.7	1347.8	1365.0	1381.4	1397.2	1412.5	1427.3	1441.8	1476.6	1510.0	1542.5	1574.3	1698.0	1819.9	h	3000
1.4029	1.4176	1.4312	1.4439	1.4559	1.4673	1.4781	1.4885	1.4984	1.5219	1.5437	1.5642	1.5837	1.6540	1.7163	s	(695.36)
0.1847	0.1926	0.1999	0.2070	0.2137	0.2201	0.2263	0.2323	0.2382	0.2523	0.2657	0.2786	0.2911	0.3386	0.3834	v	
1304.2	1324.1	1342.7	1360.3	1377.1	1393.2	1408.7	1423.7	1438.4	1473.6	1507.4	1540.1	1572.1	1696.3	1818.6	h	3100
1.3953	1.4105	1.4245	1.4376	1.4498	1.4614	1.4724	1.4830	1.4930	1.5168	1.5388	1.5594	1.5790	1.6497	1.7122	s	(700.31)
0.1765	0.1843	0.1916	0.1986	0.2052	0.2115	0.2176	0.2236	0.2293	0.2431	0.2563	0.2689	0.2811	0.3274	0.3710	v	
1297.8	1318.3	1337.5	1355.5	1372.6	1389.0	1404.8	1420.1	1434.9	1470.6	1504.7	1537.7	1569.9	1694.7	1817.3	h	3200
1.3879	1.4035	1.4179	1.4313	1.4438	1.4556	1.4668	1.4775	1.4877	1.5118	1.5340	1.5548	1.5745	1.6455	1.7082	s	(705.11)
0.1760	0.1838	0.1911	0.1981	0.2047	0.2110	0.2171	0.2231	0.2288	0.2426	0.2557	0.2683	0.2806	0.3267	0.3703	v	
1297.4	1317.9	1337.2	1355.2	1372.3	1388.7	1404.6	1419.9	1434.7	1470.4	1504.5	1537.5	1569.8	1694.6	1817.2	h	3206.2
1.3874	1.4031	1.4175	1.4309	1.4434	1.4552	1.4665	1.4772	1.4874	1.5115	1.5337	1.5545	1.5742	1.6452	1.7080	s	(705.40)
0.1687	0.1765	0.1838	0.1907	0.1972	0.2035	0.2095	0.2153	0.2210	0.2346	0.2474	0.2598	0.2718	0.3169	0.3594	v	
1291.3	1312.5	1332.1	1350.6	1368.1	1384.8	1400.9	1416.5	1431.5	1467.6	1502.0	1535.2	1567.7	1693.1	1816.1	h	3300
1.3804	1.3966	1.4113	1.4251	1.4378	1.4499	1.4613	1.4722	1.4825	1.5068	1.5292	1.5502	1.5701	1.6414	1.7043	s	
0.1613	0.1691	0.1764	0.1832	0.1897	0.1959	0.2018	0.2076	0.2132	0.2265	0.2391	0.2512	0.2629	0.3070	0.3484	v	
1284.6	1306.5	1326.7	1345.7	1363.5	1380.6	1397.0	1412.8	1428.0	1464.6	1499.3	1532.8	1565.5	1691.5	1814.8	h	3400
1.3729	1.3896	1.4048	1.4189	1.4319	1.4442	1.4558	1.4669	1.4774	1.5020	1.5246	1.5458	1.5658	1.6375	1.7005	s	
0.1543	0.1621	0.1694	0.1762	0.1826	0.1887	0.1946	0.2003	0.2058	0.2189	0.2313	0.2431	0.2546	0.2977	0.3381	v	
1277.8	1300.4	1321.2	1340.7	1358.9	1376.4	1393.0	1409.1	1424.5	1461.5	1496.6	1530.4	1563.3	1689.8	1813.6	h	3500
1.3654	1.3827	1.3983	1.4127	1.4261	1.4386	1.4505	1.4617	1.4723	1.4972	1.5201	1.5414	1.5615	1.6336	1.6968	s	
0.1477	0.1556	0.1627	0.1695	0.1758	0.1819	0.1878	0.1934	0.1988	0.2117	0.2239	0.2355	0.2467	0.2889	0.3284	v	
1270.8	1294.2	1315.6	1335.6	1354.3	1372.1	1389.0	1405.3	1421.0	1458.5	1493.9	1527.9	1561.0	1688.2	1812.3	h	3600
1.3579	1.3757	1.3919	1.4067	1.4203	1.4331	1.4452	1.4566	1.4674	1.4926	1.5157	1.5372	1.5574	1.6298	1.6932	s	
0.1414	0.1493	0.1565	0.1632	0.1695	0.1755	0.1813	0.1868	0.1922	0.2049	0.2168	0.2283	0.2393	0.2806	0.3192	v	
1263.6	1287.7	1309.9	1330.4	1349.6	1367.7	1385.0	1401.6	1417.5	1455.4	1491.2	1525.5	1558.8	1686.6	1811.0	h	3700
1.3504	1.3686	1.3854	1.4006	1.4147	1.4277	1.4400	1.4516	1.4625	1.4880	1.5113	1.5330	1.5534	1.6261	1.6897	s	
0.1354	0.1434	0.1506	0.1572	0.1635	0.1695	0.1752	0.1806	0.1859	0.1984	0.2102	0.2214	0.2322	0.2727	0.3104	v	
1256.3	1281.1	1304.0	1325.1	1344.8	1363.3	1381.0	1397.8	1413.9	1452.3	1488.4	1523.0	1556.6	1684.9	1809.7	h	3800
1.3428	1.3616	1.3789	1.3946	1.4089	1.4223	1.4348	1.4465	1.4577	1.4835	1.5070	1.5288	1.5494	1.6225	1.6862	s	
0.1297	0.1377	0.1450	0.1516	0.1578	0.1637	0.1693	0.1748	0.1800	0.1923	0.2039	0.2149	0.2255	0.2652	0.3022	v	
1248.9	1274.4	1298.0	1319.9	1339.9	1358.9	1376.9	1394.0	1410.4	1449.2	1485.7	1520.6	1554.4	1683.3	1808.5	h	3900
1.3352	1.3547	1.3724	1.3887	1.4033	1.4169	1.4297	1.4416	1.4529	1.4790	1.5028	1.5248	1.5455	1.6189	1.6828	s	
0.1243	0.1323	0.1396	0.1462	0.1524	0.1582	0.1638	0.1692	0.1743	0.1865	0.1979	0.2088	0.2192	0.2581	0.2943	v	
1241.1	1267.8	1292.1	1314.4	1335.0	1354.4	1372.7	1390.1	1406.8	1446.1	1482.9	1518.1	1552.1	1681.7	1807.2	h	4000
1.3275	1.3479	1.3662	1.3827	1.3978	1.4117	1.4247	1.4369	1.4482	1.4747	1.4987	1.5209	1.5417	1.6154	1.6795	s	
0.1004	0.1086	0.1160	0.1226	0.1287	0.1345	0.1399	0.1451	0.1500	0.1613	0.1720	0.1820	0.1917	0.2273	0.2602	v	
1200.2	1232.6	1260.9	1286.5	1309.7	1331.3	1351.4	1370.4	1388.4	1430.4	1469.1	1505.7	1540.8	1673.5	1800.9	h	4500
1.2879	1.3127	1.3339	1.3529	1.3699	1.3854	1.3997	1.4129	1.4253	1.4536	1.4789	1.5019	1.5235	1.5990	1.6640	s	
0.0811	0.0894	0.0968	0.1036	0.1097	0.1154	0.1206	0.1256	0.1303	0.1413	0.1513	0.1606	0.1696	0.2027	0.2329	v	
1155.7	1194.0	1227.0	1256.5	1282.8	1306.9	1329.2	1350.0	1369.5	1414.3	1455.0	1493.2	1529.5	1665.3	1794.5	h	5000
1.2471	1.2764	1.3012	1.3231	1.3424	1.3596	1.3755	1.3900	1.4034	1.4336	1.4602	1.4844	1.5066	1.5839	1.6499	s	
0.0657	0.0739	0.0813	0.0880	0.0940	0.0997	0.1048	0.1097	0.1143	0.1248	0.1343	0.1432	0.1516	0.1825	0.2106	v	
1108.4	1152.6	1190.6	1224.1	1253.8	1280.6	1305.3	1328.1	1349.3	1397.6	1440.8	1480.6	1518.2	1657.0	1788.1	h	5500
1.2058	1.2396	1.2682	1.2930	1.3147	1.3340	1.3515	1.3675	1.3821	1.4146	1.4427	1.4679	1.4908	1.5699	1.6369	s	

Table 4. Compressed Liquid

Abs. Press. Lb./Sq. In. (Sat. Temp.)		Temperature—Degrees Fahrenheit 32°	100°	200°	300°	400°	500°	600°	620°	640°	660°	680°	690°	700°	705.4°
	p	0.08854	0.9492	11.526	67.013	247.31	680.8	1542.9	1786.6	2059.7	2365.4	2708.1	2895.1	3093.7	3206.2
	Saturated v_f	0.016022	0.016132	0.016634	0.017449	0.018639	0.020432	0.023629	0.02466	0.02598	0.02777	0.03054	0.03277	0.03692	0.05030
	Liquid h_f	0	67.97	167.99	269.59	374.97	487.82	617.0	646.7	678.6	714.2	757.3	784.4	823.3	902.7
	s_f	0	0.12948	0.29382	0.43694	0.56638	0.68871	0.8131	0.8398	0.8679	0.8987	0.9351	0.9578	0.9905	1.0580
	$(v-v_f)\cdot 10^5$	−1.1	−1.1	−1.1	−1.1										
200	$(h-h_f)$	+0.61	+0.54	+0.41	+0.23										
(381.79)	$(s-s_f)\cdot 10^3$	+0.03	−0.05	−0.21	−0.21										
	$(v-v_f)\cdot 10^5$	−2.3	−2.1	−2.2	−2.8	−2.1									
400	$(h-h_f)$	+1.21	+1.09	+0.88	+0.61	+0.16									
(444.59)	$(s-s_f)\cdot 10^3$	+0.04	−0.16	−0.47	−0.56	−0.40									
	$(v-v_f)\cdot 10^5$	−3.5	−3.2	−3.4	−4.3	−4.4									
600	$(h-h_f)$	+1.80	+1.67	+1.31	+0.97	+0.39									
(486.21)	$(s-s_f)\cdot 10^3$	+0.07	−0.27	−0.74	−0.94	−0.96									
	$(v-v_f)\cdot 10^5$	−4.6	−4.0	−4.4	−5.6	−6.5	−1.7								
800	$(h-h_f)$	+2.39	+2.17	+1.78	+1.35	+0.61	−0.05								
(518.23)	$(s-s_f)\cdot 10^3$	+0.10	−0.40	−0.97	−1.27	−1.48	−0.53								
	$(v-v_f)\cdot 10^5$	−5.7	−5.1	−5.4	−6.9	−8.7	−6.4								
1000	$(h-h_f)$	+2.99	+2.70	+2.21	+1.75	+0.84	−0.14								
(544.61)	$(s-s_f)\cdot 10^3$	+0.15	−0.53	−1.20	−1.64	−2.00	−1.41								
	$(v-v_f)\cdot 10^5$	−8.4	−7.5	−8.1	−10.4	−14.1	−17.3								
1500	$(h-h_f)$	+4.48	+3.99	+3.36	+2.70	+1.44	−0.29								
(596.23)	$(s-s_f)\cdot 10^3$	+0.20	−0.86	−1.79	−2.53	−3.32	−3.56								
	$(v-v_f)\cdot 10^5$	−11.0	−9.9	−10.8	−13.8	−19.5	−27.8	−32.6	−24						
2000	$(h-h_f)$	+5.97	+5.31	+4.51	+3.64	+2.03	−0.38	−2.5	−1.8						
(635.82)	$(s-s_f)\cdot 10^3$	+0.22	−1.18	−2.39	−3.42	−4.57	−5.58	−4.3	−2.6						
	$(v-v_f)\cdot 10^5$	−13.7	−12.3	−13.4	−17.2	−24.8	−37.7	−61.9	−65	−67	−48				
2500	$(h-h_f)$	+7.49	+6.58	+5.63	+4.55	+2.66	−0.41	−4.0	−5.6	−5.4	−3.1				
(668.13)	$(s-s_f)\cdot 10^3$	+0.25	−1.48	−2.97	−4.25	−5.79	−7.54	−8.5	−8.2	−6.9	−3.4				
	$(v-v_f)\cdot 10^5$	−16.3	−14.7	−13.0	−20.7	−30.0	−47.1	−87.9	−101	−122	−146	−172	−166		
3000	$(h-h_f)$	+9.00	+7.88	+6.76	+5.49	+3.33	−0.41	− 6.9	−8.7	−10.3	−11.8	−12.2	−8.9		
(695.36)	$(s-s_f)\cdot 10^3$	+0.28	−1.79	−3.56	−5.12	−7.03	−9.42	−12.4	−13.0	−13.4	−13.3	−12.0	−8.2		
	$(v-v_f)\cdot 10^5$	−17.5	−15.7	−17.1	−22.2	−32.1	−51.0	−98.0	− 114	−139	−177	−240	−299	−354	0
3206.2	$(h-h_f)$	+9.61	+8.45	+7.25	+5.90	+3.62	−0.40	−7.6	−9.8	−12.1	−14.6	−17.6	−19.4	−21.6	0
(705.40)	$(s-s_f)\cdot 10^3$	+0.29	−1.93	−3.80	−5.50	−7.54	−10.19	−14.0	−15.0	−16.0	−16.8	−17.8	−18.4	−19.2	0
	$(v-v_f)\cdot 10^5$	−19.0	−16.9	−18.5	−24.2	−35.0	−56.1	−111.1	−133	−166	− 215	−312	−407	−634	−1815
3500	$(h-h_f)$	+10.44	+9.17	+7.90	+6.44	+4.01	−0.34	−8.6	−11.2	−14.3	−17.8	−24.2	−29.7	−42.8	−104.1
	$(s-s_f)\cdot 10^3$	+0.30	−2.08	−4.14	−5.97	−8.21	−11.24	−16.0	−17.4	−19.1	−20.9	−24.9	−28.7	−39.0	−91.0

	$(v-v_f)\cdot 10^5$	−21.5	−19.2	−21.0	−27.5	−40.0	−64.5	−132.2	−160	−202	−270	−400	−528	−821	−2079
4000	$(h-h_f)$	+11.88	+10.49	+9.03	+7.41	+4.71	−0.16	−10.0	−13.3	−17.4	−22.5	−32.4	−41.2	−59.5	−126.6
	$(s-s_f)\cdot 10^3$	+0.29	−2.42	−4.74	−6.77	−9.40	−13.03	−19.3	−21.4	−24.0	−27.2	−34.3	−41.0	−55.8	−112.7
	$(v-v_f)\cdot 10^5$	−24.1	−21.4	−23.5	−30.7	−44.9	−72.5	−151.5	−184	−234	−313	−464	−611	−937	−2219
4500	$(h-h_f)$	+13.32	+11.80	+10.15	+8.40	+5.40	+0.02	−11.1	−15.1	−19.9	−26.4	−38.4	−49.0	−69.8	−138.9
	$(s-s_f)\cdot 10^3$	+0.26	−2.74	−5.33	−7.60	−10.58	−14.80	−22.4	−25.1	−28.3	−32.7	−41.8	−50.0	−67.0	−125.6
	$(v-v_f)\cdot 10^5$	−26.7	−23.6	−26.0	−34.0	−49.6	−80.5	−169.3	−206	−262	−350	−518	−677	−1017	−2309
5000	$(h-h_f)$	+14.75	+13.08	+11.30	+9.36	+6.08	+0.25	−12.1	−16.7	−22.0	−29.5	−43.0	−54.7	−76.9	−146.7
	$(s-s_f)\cdot 10^3$	+0.22	−3.07	−5.92	−8.40	−11.74	−16.47	−25.3	−28.5	−32.2	−37.5	−47.9	−57.2	−75.3	−134.6
	$(v-v_f)\cdot 10^5$	−29 2	−25.7	−28.4	−37.2	−54.2	−88.3	−186.1	−227	−288	−384	−562	−727	−1076	−2375
5500	$(h-h_f)$	+16.18	+14.41	+12.47	+10.36	+6.78	+0.52	−13.1	−18.0	−23.7	−31.8	−46.4	−58.7	−82.0	−152.6
	$(s-s_f)\cdot 10^3$	+0.20	−3.39	−6.47	−9.20	−12.86	−18.10	−28.0	−31.5	−35.6	−41.5	−52.7	−62.4	−81.5	−141.4
	$(v-v_f)\cdot 10^5$	−31.7	−27.8	−30.8	−40.5	−58.7	−96.1	−202.9							
6000	$(h-h_f)$	+17.60	+15.72	+13.62	+11.39	+7.50	+0.77	−14.0							
	$(s-s_f)\cdot 10^3$	+0.10	−3.72	−7.06	−10.00	−13.96	−19.57	−30.6							

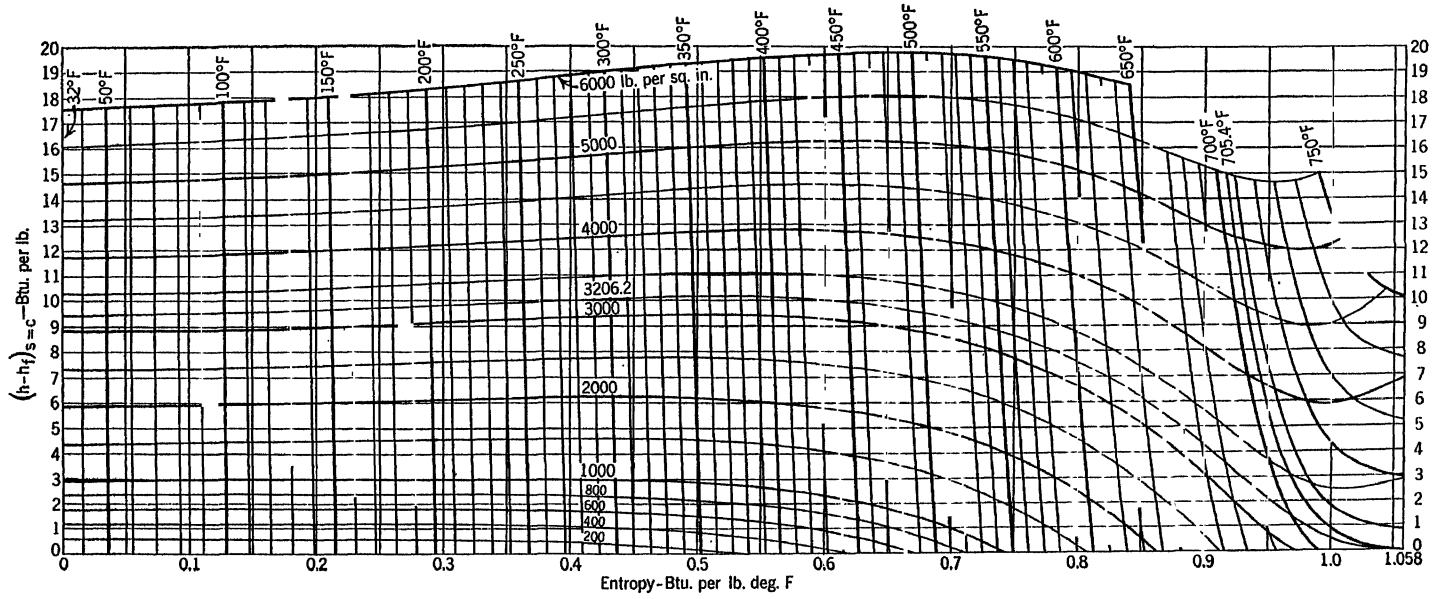


FIGURE 3. Enthalpy changes for constant entropy.

Departure of enthalpy from the value for saturated liquid at the same ENTROPY. The work of isentropic steady flow compression is the difference between two values of the ordinate at the same entropy.

Table 5. Saturation: Solid-Vapor

Temp. Fahr.	Abs. Press.	Specific Volume		Enthalpy			Entropy			Internal Energy			Temp. Fahr.
	Lb./Sq. In.	Sat. Solid	Sat. Vapor	Sat. Solid	Subl.	Sat. Vapor	Sat. Solid	Subl.	Sat. Vapor	Sat. Solid	Subl.	Sat. Vapor	
t	p	v_i	$v_g \times 10^{-3}$	h_i	h_{ig}	h_g	s_i	s_{ig}	s_g	u_i	u_{ig}	u_g	t
32°	0.0885	0.01747	3.306	−143.35	1219.1	1075.8	−0.2916	2.4793	2.1877	−143.35	1164.9	1021.6	32°
30	0.0808	0.01747	3.609	−144.35	1219.3	1074.9	−0.2936	2.4897	2.1961	−144.35	1165.4	1021.0	30
25	0.0640	0.01746	4.508	−146.84	1219.6	1072.8	−0.2987	2.5159	2.2172	−146.84	1166.2	1019.4	25
20	0.0505	0.01745	5.658	−149.31	1219.9	1070.6	−0.3038	2.5425	2.2387	−149.31	1167.0	1017.7	20
15°	0.0396	0.01745	7.14	−151.75	1220.2	1068.4	−0.3089	2.5698	2.2609	−151.75	1167.9	1016.1	15°
10	0.0309	0.01744	9.05	−154.17	1220.4	1066.2	−0.3141	2.5977	2.2836	−154.17	1168.6	1014.4	10
5	0.0240	0.01743	11.53	−156.56	1220.6	1064.0	−0.3192	2.6260	2.3068	−156.56	1169.4	1012.8	5
0	0.0185	0.01742	14.77	−158.93	1220.7	1061.8	−0.3241	2.6546	2.3305	−158.93	1170.0	1011.1	0
−5	0.0142	0.01742	19.04	−161.27	1220.9	1059.6	−0.3294	2.6842	2.3548	−161.27	1170.8	1009.5	−5
−10	0.0108	0.01741	24.67	−163.59	1221.0	1057.4	−0.3346	2.7143	2.3797	−163.59	1171.4	1007.8	−10
−15°	0.0082	0.01740	32.1	−165.89	1221.1	1055.2	−0.3397	2.7449	2.4052	−165.89	1172.1	1006.2	−15°
−20	0.0062	0.01739	42.2	−168.16	1221.2	1053.0	−0.3448	2.7764	2.4316	−168.16	1172.7	1004.5	−20
−25	0.0046	0.01739	55.8	−170.40	1221.2	1050.8	−0.3500	2.8085	2.4585	−170.40	1173.3	1002.9	−25
−30	0.0035	0.01738	74.1	−172.63	1221.2	1048.6	−0.3551	2.8411	2.4860	−172.63	1173.8	1001.2	−30
−35	0.0025	0.01737	99.3	−174.82	1221.2	1046.4	−0.3602	2.8745	2.5143	−174.82	1174.4	999.6	−35
−40	0.0019	0.01737	133.9	−177.00	1221.2	1044.2	−0.3654	2.9087	2.5433	−177.00	1174.9	997.9	−40

Table 6. Viscosity $\times 10^7$ (lb. sec. ft.$^{-2}$)

Temperature—Degrees Fahrenheit

	Sat. Vapor	32°	200°	400°	600°	800°	1000°	1200°
Sat. Liquid		374	63.7	28.7	18.2			
Sat. Vapor		1.69	2.45	3.43	4.79			
p Lb./Sq. In.								
0		1.69	2.45	3.37	4.30	5.22	6.12	7.00
500	3.81				4.41	5.32	6.22	7.10
1000	4.32				4.54	5.43	6.32	7.20
1500	4.75				4.76	5.54	6.43	7.30
2000	5.18					5.66	6.53	7.41
2500	5.67					5.80	6.64	7.51
3000	6.30					5.98	6.75	7.61
3500						6.24	6.86	7.72

Table 7. Heat Conductivity $\times 10^3$ (Btu. hr.$^{-1}$ ft.$^{-2}$ °F^{-1} ft.)

Temperature—Degrees Fahrenheit

	Sat. Vapor	32°	200°	400°	600°	800°	1000°
Sat. Vapor		9.3	16.41	24.78	49.30		
p Lb./Sq. In.							
0		13.16	15.91	19.91	25.56	30.55	49.53
250	24.76				27.34	31.39	49.98
500	29.91				29.64	32.65	50.46
1000	39.48				36.50	34.66	51.54
1500	48.64				48.00	37.66	52.78
1750	54.67					39.48	53.48
2000	57.82					41.56	54.22

Table 8. Conversion Factors

Basic Definitions and Ratios:

Length: 2.54000 cm. = 1 in.
Mass: 453.5924 grams = 1 pound
Pressure: (*a*) One standard atmosphere = pressure of 76 cm. mercury column (density 13.5951 g. per cu. cm., gravity 980.665 cm. per sec. per sec.)
(*b*) One bar = 10^6 dynes per sq. cm.

Energy: (*a*) 1000 international steam-table calories (1000 IT. cal.) = $\frac{1}{860}$ international kilowatt-hour
(*b*) 1 international electrical watt = 1.0003 absolute watts
(*c*) 1 British thermal unit = 251.996 IT. cal
Temperature: The Fahrenheit temperature scale used in the tables is defined as $t_F = 1.8t + 32$, where t is the temperature on the International (Centigrade) Scale.
The Absolute Fahrenheit Scale is $T_F = t_F + 459.69 = 1.8\ (t + 273.16)$

Table Quantities

Specific Volume

1 ft.³/lb. = 62.428 cm.³/g. 1 cm.³/g. = 0.0160185 ft.³/lb.

Energy (Specific)

	Abs. joules / g.	Kg. m. / g.	Ft. lb. / lb.	Int. joules / g.	Int. w. hr. / g.	IT. cal. / g.	Btu. / lb.	Lb. ft.³ / in.² lb.	Atm. cm³ / g.	Hp. hr. / lb.
10^3 Abs. joules / g.	1000*	101.972	334553	999.7	0.277694	238.817	429.87	2323.28	9869.23	0.168966
10 Kg. m. / g.	98.0665*	10*	32808	98.0371	0.0272325	23.420	42.156	227.836	967.841	0.0165699
10^6 Ft. lb. / lb.	2989.1	304.8*	1000000*	2988.2	0.8300	713.83	1284.91	6944.44	29500	0.50505
10^3 Int. joules / g.	1000.3	102.002	334651	1000*	0.27778	238.89	430.00	2324.0	9872.2	0.16902
10^{-5} Int. kw. hr. / g.	36.011	3.6721	12047	36*	0.01*	8.6*	15.4800	83.663	355.40	0.006085
10 IT. cal. / g.	41.873	4.2699	14009	41.8605	0.0116279	10*	18*	97.28	413.255	0.0070751
10^2 Btu. / lb.	232.63	23.722	77826	232.56	0.064600	55.5556	100*	540.46	2295.8	0.039306
10^4 Lb. ft.³ / in.² lb.	4304.3	438.91	1440000*	4303.0	1.1953	1027.9	1850.27	10000*	42480	0.72727
10^4 Atm. cm.³ / g.	1013.25	103.323	338985	1012.95	0.281374	241.98	435.57	2354.1	10000*	0.17120
10^{-3} Hp. hr. / lb.	5.9184	0.60350	1980*	5.9166	0.00164349	1.4134	2.5441	13.750	58.409	0.001*

Entropy (Specific) and Specific Heat

1 Btu./°F lb. = 1 IT. cal./°C g.
Other conversion factors can be obtained from the Energy (Specific) table by means of the factors
1 $°F^{-1}$ = 1.8 $°C^{-1}$, and 1 $°C^{-1}$ = 0.55556 $°F^{-1}$

Pressure

Units	Atm.	kg./cm.²	lb./in.²	bar	mm. Hg. (0°C)	in. Hg. (32°F)	ft. H_2O (60°F)
1 Atmosphere	1*	1.033228	14.6959	1.013250	760*	29.921	33.934
1 kg./cm.²	0.967841	1*	14.2233	0.980665*	735.559	28.959	32.843
10 lb./in.²	0.68046	0.70307	10*	0.689476	517.149	20.360	23.091
1 bar	0.986923	1.019716	14.5038	1*	750.062	29.530	33.490
1 meter Hg. (0°C)	1.31579	1.35951	19.3368	1.333224	1000*	39.370	44.65
10 in. Hg. (32°F)	0.33421	0.34532	4.9115	0.33864	254*	10*	11.341
100 ft. H_2O (60°F)	2.9469	3.0448	43.308	2.9859	2239.6	88.175	100*

Energy

Units	Abs. joules	Kg. m.	Ft. lb.	Int. joules	Int. w. hr.	IT. cal.	Btu.	Lb./in.² × ft.³	Atm. × cm.³	Hp. hr.
10^4 Abs. joules	10000*	1019.72	7375.62	9997	2.77694	2388.17	9.4770	51.2196	98692.3	0.00372506
10^4 Kg. m.	98066.5	10000*	72330	98037.1	27.2325	23420	92.938	502.293	9678.41	0.0365304
10^4 Ft. lb.	13558.2	1382.55	10000*	13554.1	3.7650	3237.9	12.8491	69.4444	133809	0.0050505
10^4 Int. joules	10003	1020.02	7377.8	10000*	2.7778	2388.9	9.4799	51.235	98722	0.0037262
10^{-3} Int. Kw. hr.	3601.1	367.21	2656.0	3600*	1*	860*	3.41275	18.4446	35540	0.0013414
10^4 IT. cal.	41873	4269.9	30884	41860.5	11.6279	10000*	39.683	214.47	413255	0.0155980
10 Btu.	10551.8	1075.99	7782.6	10548.7	2.93019	2519.96	10*	54.046	104138	0.0039306
10^2 Lb./in.² × ft.³	19523.8	1990.87	14400*	19517.9	5.4216	4662.6	18.5027	100*	192685	0.0072727
10^5 Atm. × cm.³	10132.5	1033.23	7473.35	10129.5	2.81374	2419.8	9.6026	51.898	100000*	0.0037744
10^{-3} Hp. hr.	2684.5	273.75	1980*	2683.7	0.74548	641.1	2.5441	13.750	26494	0.001*

* Exact value, by definition.

TABLE OF EQUIVALENT TEMPERATURES

Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.
−50°	−58°	75°	167°	200°	392°	325°	617°	450°	842°	575°	1067°	700°	1292°	825°	1517°
−45	−49	80	176	205	401	330	626	455	851	580	1076	705	1301	830	1526
−40	−40	85	185	210	410	335	635	460	860	585	1085	710	1310	835	1535
−35	−31	90	194	215	419	340	644	465	869	590	1094	715	1319	840	1544
−30	−22	95	203	220	428	345	653	470	878	595	1103	720	1328	845	1553
−25°	−13°	100°	212°	225°	437°	350°	662°	475°	887°	600°	1112°	725°	1337°	850°	1562°
−20	− 4	105	221	230	446	355	671	480	896	605	1121	730	1346	855	1571
−15	+ 5	110	230	235	455	360	680	485	905	610	1130	735	1355	860	1580
−10	14	115	239	240	464	365	689	490	914	615	1139	740	1364	865	1589
− 5	23	120	248	245	473	370	698	495	923	620	1148	745	1373	870	1598
0°	32°	125°	257°	250°	482°	375°	707°	500°	932°	625°	1157°	750°	1382°	875°	1607°
5	41	130	266	255	491	380	716	505	941	630	1166	755	1391	880	1616
10	50	135	275	260	500	385	725	510	950	635	1175	760	1400	885	1625
15	59	140	284	265	509	390	734	515	959	640	1184	765	1409	890	1634
20	68	145	293	270	518	395	743	520	968	645	1193	770	1418	895	1643
25°	77°	150°	302°	275°	527°	400°	752°	525°	977°	650°	1202°	775°	1427°	900°	1652°
30	86	155	311	280	536	405	761	530	986	655	1211	780	1436	905	1661
35	95	160	320	285	545	410	770	535	995	660	1220	785	1445	910	1670
40	104	165	329	290	554	415	779	540	1004	665	1229	790	1454	915	1679
45	113	170	338	295	563	420	788	545	1013	670	1238	795	1463	920	1688
50°	122°	175°	347°	300°	572°	425°	797°	550°	1022°	675°	1247°	800°	1472°	925°	1697°
55	131	180	356	305	581	430	806	555	1031	680	1256	805	1481	930	1706
60	140	185	365	310	590	435	815	560	1040	685	1265	810	1490	935	1715
65	149	190	374	315	599	440	824	565	1049	690	1274	815	1499	940	1724
70	158	195	383	320	608	445	833	570	1058	695	1283	820	1508	945	1733

TABLE OF VALUES FOR INTERPOLATION IN ABOVE

1°C = 1.8°F	4°C = 7.2°F	7°C = 12.6°F	1°F = 0.55°C	4°F = 2.22°C	7°F = 3.88°C
2 = 3.6	5 = 9.0	8 = 14.4	2 = 1.11	5 = 2.77	8 = 4.44
3 = 5.4	6 = 10.8	9 = 16.2	3 = 1.66	6 = 3.33	9 = 5.00
All decimals are exact.			All decimals are repeating decimals.		

Table 9. Thermometer Calibration Formulas*

Sulfur boiling point: $t_p = 444.600 + 0.0908028\,(p - 760) - 0.000047573\,(p - 760)^2 + 0.00000004361\,(p - 760)^3$

Mercury boiling point: $t_p = 356.580 + 0.0730951\,(p - 760) - 0.000039866\,(p - 760)^2 + 0.00000003191\,(p - 760)^3$

Water boiling point: $t_p = 100.000 + 0.0368578\,(p - 760) - 0.000020159\,(p - 760)^2 + 0.00000001621\,(p - 760)^3$

Water freezing point: $t = -0.0000129\,(p - 760) - 0.00000072\,H$ [Air Saturated]

Temperatures are on the international temperature scale degrees Centigrade.

p is absolute pressure in mm. of mercury (density 13.5951 g./cm.^{3}, gravity 980.665 cm./sec.^{2}).

The formulations are valid for 660 mm. $< p <$ 860 mm.

H = head of water in mm.

* J. A. Beattie, B. E. Blaisdell, J. Kaminsky — Proc. Am. Acad. Arts & Sci. 71, 327 (1937). J. A. Beattie, T. C. Huang, M. Benedict - Ibid. 72, 137 (1938).

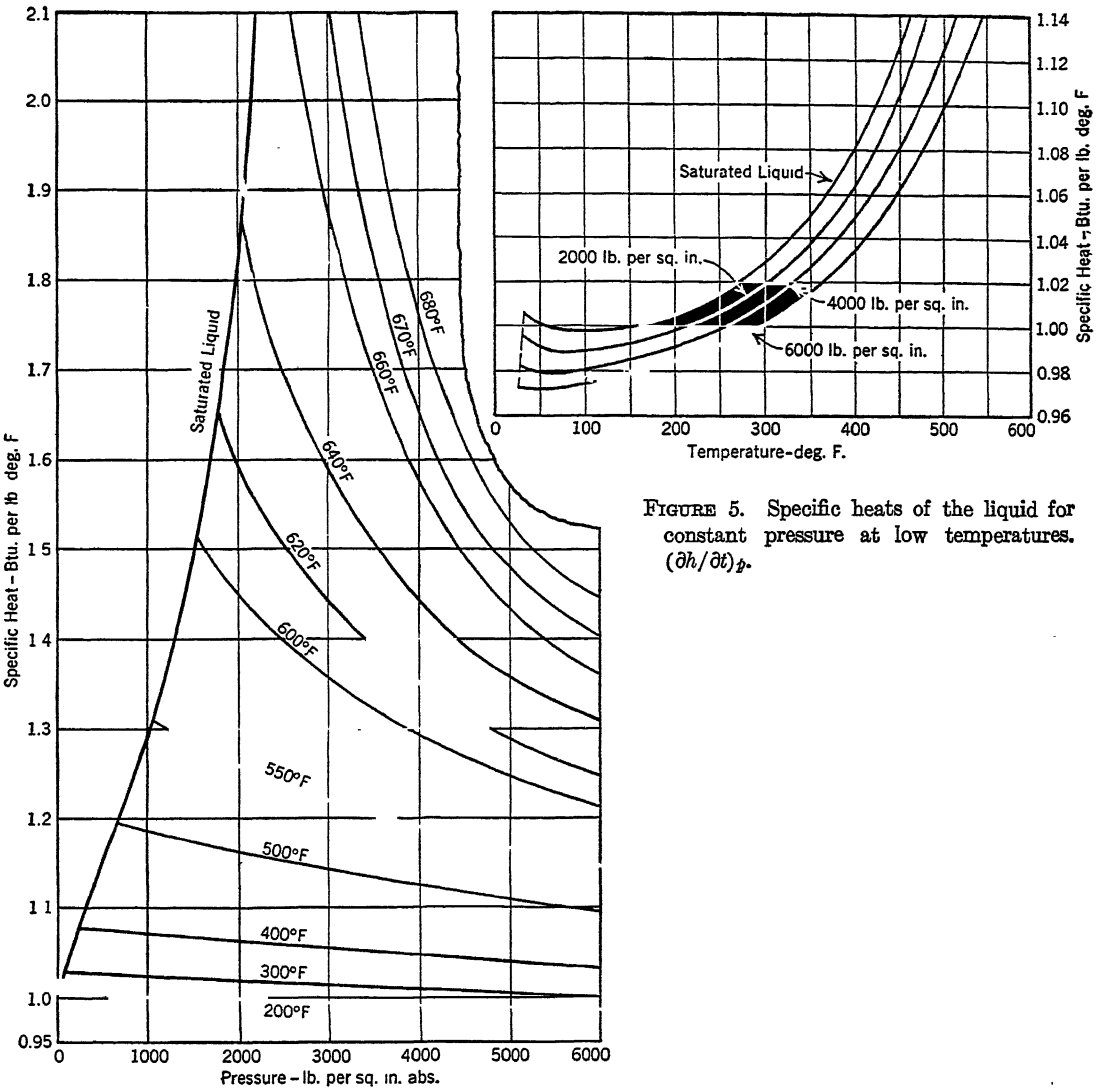


FIGURE 4. Specific heats of the liquid for constant pressure. $(\partial h/\partial t)_p$.

FIGURE 5. Specific heats of the liquid for constant pressure at low temperatures. $(\partial h/\partial t)_p$.

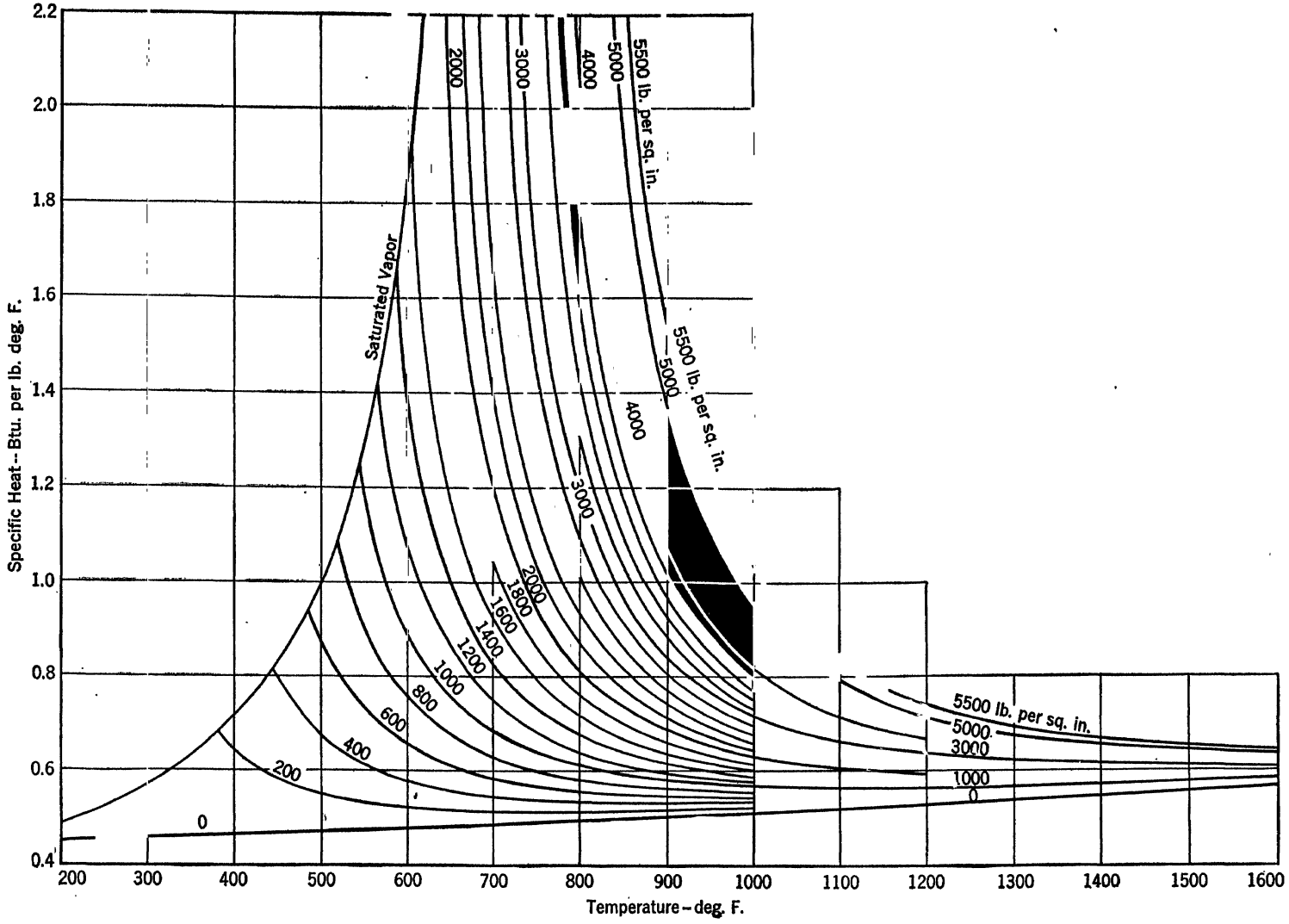


FIGURE 6. Specific heats of the vapor for constant pressure. $(\partial h/\partial t)_p$.

Numbers on curves give pressures in lb. per sq. in. abs.

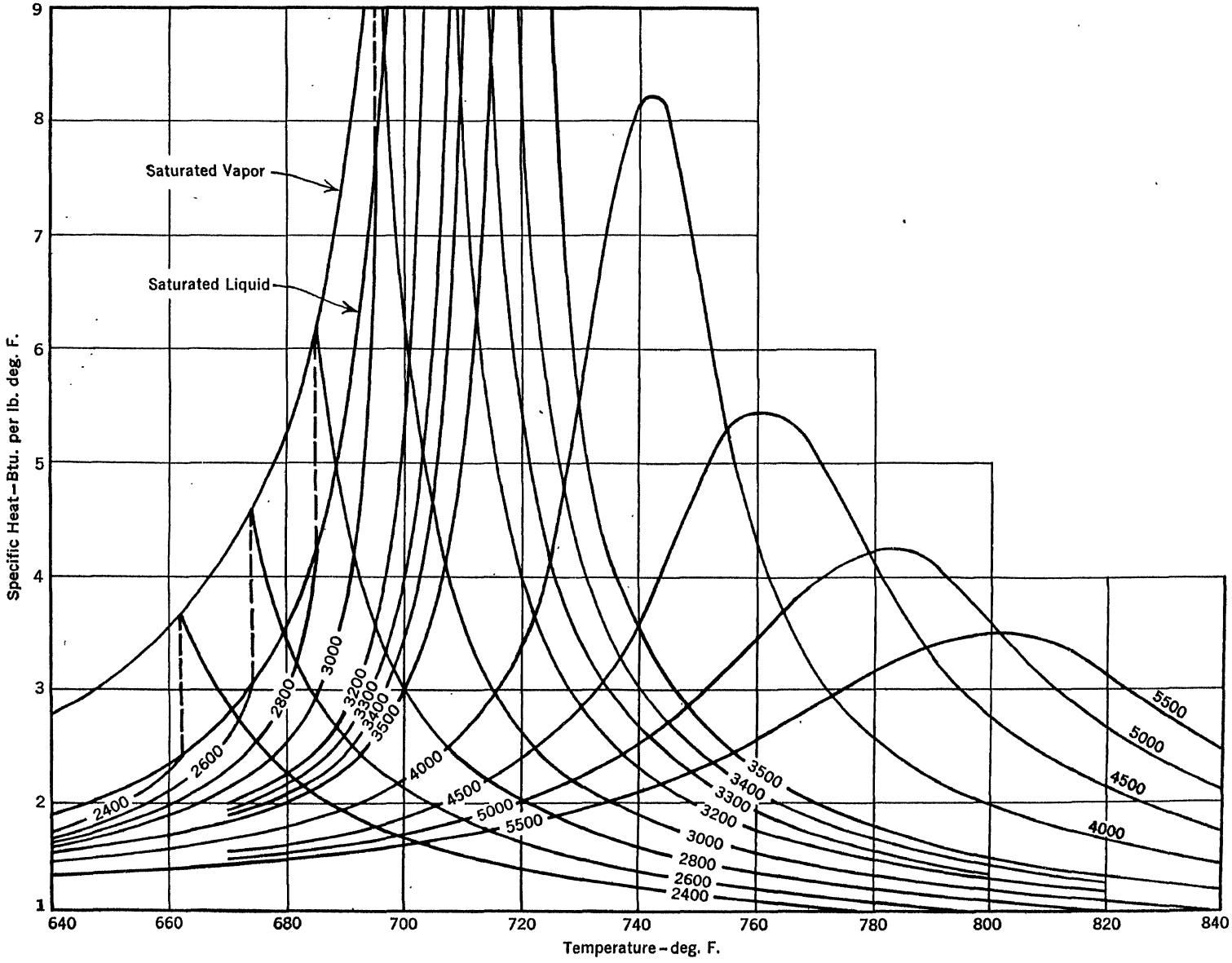


FIGURE 7. Constant pressure specific heats for high pressures. $(\partial h/\partial t)_p$.

Numbers on curves give pressures in lb. per. sq. in. abs.

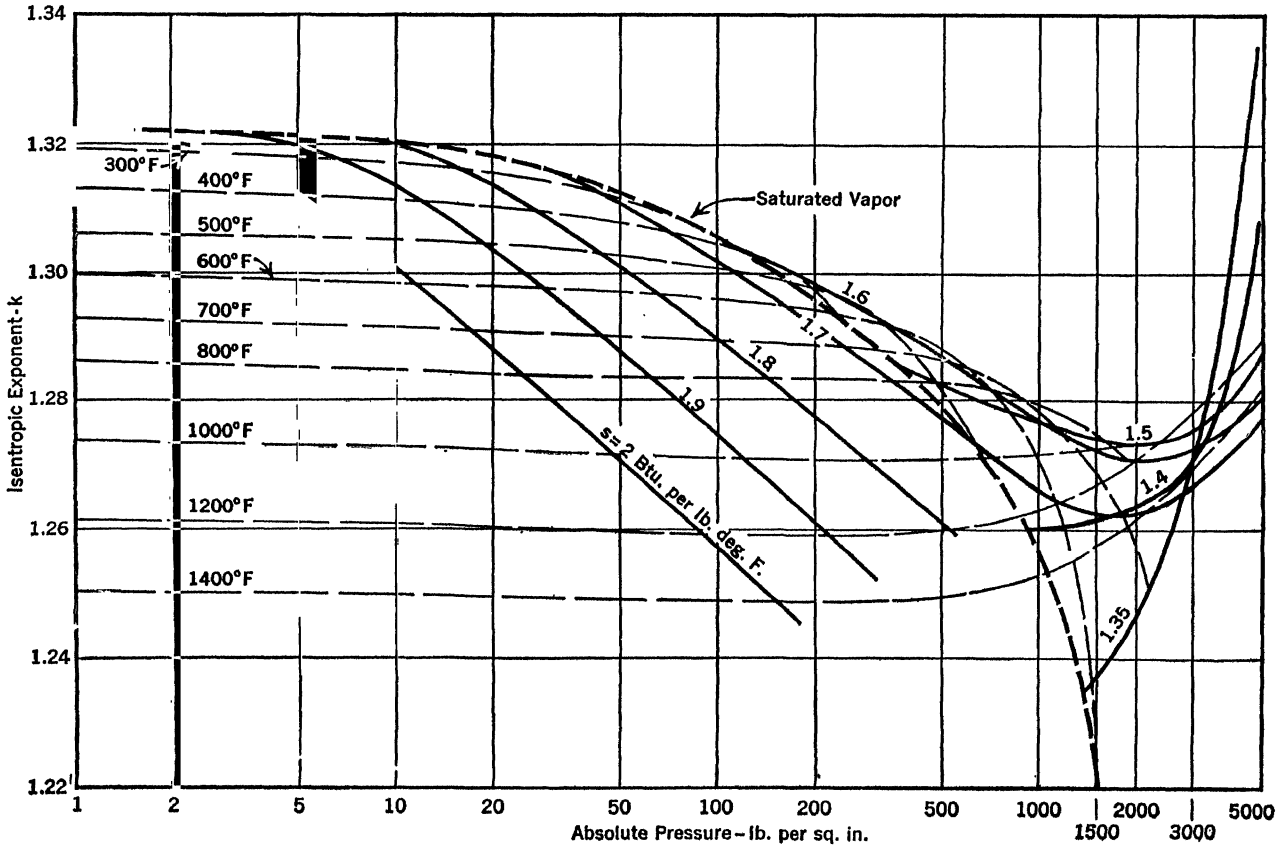


FIGURE 8. Isentropic expansion exponents.

$$k = -\left[\frac{\partial (\log p)}{\partial (\log v)}\right]_s = -\frac{v}{p}\left(\frac{\partial p}{\partial v}\right)_s = -\frac{v}{p}\left(\frac{\partial p}{\partial v}\right)_T \frac{C_p}{C_v}$$

For small changes in pressure (or volume) along an isentropic, pv^k = constant.

ACKNOWLEDGMENTS

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Table 10. Logarithms to the Base 10

	0	1	2	3	4	5	6	7	8	9	10
1.00	0.0000	0004	0009	0013	0017	0022	0026	0030	0035	0039	0043
1.01	0043	0048	0052	0056	0060	0065	0069	0073	0077	0082	0086
1.02	0086	0090	0095	0099	0103	0107	0111	0116	0120	0124	0128
1.03	0128	0133	0137	0141	0145	0149	0154	0158	0162	0166	0170
1.04	0170	0175	0179	0183	0187	0191	0195	0199	0204	0208	0212
1.05	0212	0216	0220	0224	0228	0233	0237	0241	0245	0249	0253
1.06	0253	0257	0261	0265	0269	0273	0278	0282	0286	0290	0294
1.07	0294	0298	0302	0306	0310	0314	0318	0322	0326	0330	0334
1.08	0334	0338	0342	0346	0350	0354	0358	0362	0366	0370	0374
1.09	0374	0378	0382	0386	0390	0394	0398	0402	0406	0410	0414
1.10	0.0414	0418	0422	0426	0430	0434	0438	0441	0445	0449	0453
1.11	0453	0457	0461	0465	0469	0473	0477	0481	0484	0488	0492
1.12	0492	0496	0500	0504	0508	0512	0515	0519	0523	0527	0531
1.13	0531	0535	0538	0542	0546	0550	0554	0558	0561	0565	0569
1.14	0569	0573	0577	0580	0584	0588	0592	0596	0599	0603	0607
1.15	0607	0611	0615	0618	0622	0626	0630	0633	0637	0641	0645
1.16	0645	0648	0652	0656	0660	0663	0667	0671	0674	0678	0682
1.17	0682	0686	0689	0693	0697	0700	0704	0708	0711	0715	0719
1.18	0719	0722	0726	0730	0734	0737	0741	0745	0748	0752	0755
1.19	0755	0759	0763	0766	0770	0774	0777	0781	0785	0788	0792
1.20	0.0792	0795	0799	0803	0806	0810	0813	0817	0821	0824	0828
1.21	0828	0831	0835	0839	0842	0846	0849	0853	0856	0860	0864
1.22	0864	0867	0871	0874	0878	0881	0885	0888	0892	0896	0899
1.23	0899	0903	0906	0910	0913	0917	0920	0924	0927	0931	0934
1.24	0934	0938	0941	0945	0948	0952	0955	0959	0962	0966	0969
1.25	0969	0973	0976	0980	0983	0986	0990	0993	0997	1000	1004
1.26	1004	1007	1011	1014	1017	1021	1024	1028	1031	1035	1038
1.27	1038	1041	1045	1048	1052	1055	1059	1062	1065	1069	1072
1.28	1072	1075	1079	1082	1086	1089	1092	1096	1099	1103	1106
1.29	1106	1109	1113	1116	1119	1123	1126	1129	1133	1136	1139
1.30	0.1139	1143	1146	1149	1153	1156	1159	1163	1166	1169	1173
1.31	1173	1176	1179	1183	1186	1189	1193	1196	1199	1202	1206
1.32	1206	1209	1212	1216	1219	1222	1225	1229	1232	1235	1239
1.33	1239	1242	1245	1248	1252	1255	1258	1261	1265	1268	1271
1.34	1271	1274	1278	1281	1284	1287	1290	1294	1297	1300	1303
1.35	1303	1307	1310	1313	1316	1319	1323	1326	1329	1332	1335
1.36	1335	1339	1342	1345	1348	1351	1355	1358	1361	1364	1367
1.37	1367	1370	1374	1377	1380	1383	1386	1389	1392	1396	1399
1.38	1399	1402	1405	1408	1411	1414	1418	1421	1424	1427	1430
1.39	1430	1433	1436	1440	1443	1446	1449	1452	1455	1458	1461
1.40	0.1461	1464	1467	1471	1474	1477	1480	1483	1486	1489	1492
1.41	1492	1495	1498	1501	1504	1508	1511	1514	1517	1520	1523
1.42	1523	1526	1529	1532	1535	1538	1541	1544	1547	1550	1553
1.43	1553	1556	1559	1562	1565	1569	1572	1575	1578	1581	1584
1.44	1584	1587	1590	1593	1596	1599	1602	1605	1608	1611	1614
1.45	1614	1617	1620	1623	1626	1629	1632	1635	1638	1641	1644
1.46	1644	1647	1649	1652	1655	1658	1661	1664	1667	1670	1673
1.47	1673	1676	1679	1682	1685	1688	1691	1694	1697	1700	1703
1.48	1703	1706	1708	1711	1714	1717	1720	1723	1726	1729	1732
1.49	1732	1735	1738	1741	1744	1746	1749	1752	1755	1758	1761

Table 10. Logarithms to the Base 10

	0	1	2	3	4	5	6	7	8	9	10
1.50	0.1761	1764	1767	1770	1772	1775	1778	1781	1784	1787	1790
1.51	1790	1793	1796	1798	1801	1804	1807	1810	1813	1816	1818
1.52	1818	1821	1824	1827	1830	1833	1836	1838	1841	1844	1847
1.53	1847	1850	1853	1855	1858	1861	1864	1867	1870	1872	1875
1.54	1875	1878	1881	1884	1886	1889	1892	1895	1898	1901	1903
1.55	1903	1906	1909	1912	1915	1917	1920	1923	1926	1928	1931
1.56	1931	1934	1937	1940	1942	1945	1948	1951	1953	1956	1959
1.57	1959	1962	1965	1967	1970	1973	1976	1978	1981	1984	1987
1.58	1987	1989	1992	1995	1998	2000	2003	2006	2009	2011	2014
1.59	2014	2017	2019	2022	2025	2028	2030	2033	2036	2038	2041
1.60	0.2041	2044	2047	2049	2052	2055	2057	2060	2063	2066	2068
1.61	2068	2071	2074	2076	2079	2082	2084	2087	2090	2092	2095
1.62	2095	2098	2101	2103	2106	2109	2111	2114	2117	2119	2122
1.63	2122	2125	2127	2130	2133	2135	2138	2140	2143	2146	2148
1.64	2148	2151	2154	2156	2159	2162	2164	2167	2170	2172	2175
1.65	2175	2177	2180	2183	2185	2188	2191	2193	2196	2198	2201
1.66	2201	2204	2206	2209	2212	2214	2217	2219	2222	2225	2227
1.67	2227	2230	2232	2235	2238	2240	2243	2245	2248	2251	2253
1.68	2253	2256	2258	2261	2263	2266	2269	2271	2274	2276	2279
1.69	2279	2281	2284	2287	2289	2292	2294	2297	2299	2302	2304
1.70	0.2304	2307	2310	2312	2315	2317	2320	2322	2325	2327	2330
1.71	2330	2333	2335	2338	2340	2343	2345	2348	2350	2353	2355
1.72	2355	2358	2360	2363	2365	2368	2370	2373	2375	2378	2380
1.73	2380	2383	2385	2388	2390	2393	2395	2398	2400	2403	2405
1.74	2405	2408	2410	2413	2415	2418	2420	2423	2425	2428	2430
1.75	2430	2433	2435	2438	2440	2443	2445	2448	2450	2453	2455
1.76	2455	2458	2460	2463	2465	2467	2470	2472	2475	2477	2480
1.77	2480	2482	2485	2487	2490	2492	2494	2497	2499	2502	2504
1.78	2504	2507	2509	2512	2514	2516	2519	2521	2524	2526	2529
1.79	2529	2531	2533	2536	2538	2541	2543	2545	2548	2550	2553
1.80	0.2553	2555	2558	2560	2562	2565	2567	2570	2572	2574	2577
1.81	2577	2579	2582	2584	2586	2589	2591	2594	2596	2598	2601
1.82	2601	2603	2605	2608	2610	2613	2615	2617	2620	2622	2625
1.83	2625	2627	2629	2632	2634	2636	2639	2641	2643	2646	2648
1.84	2648	2651	2653	2655	2658	2660	2662	2665	2667	2669	2672
1.85	2672	2674	2676	2679	2681	2683	2686	2688	2690	2693	2695
1.86	2695	2697	2700	2702	2704	2707	2709	2711	2714	2716	2718
1.87	2718	2721	2723	2725	2728	2730	2732	2735	2737	2739	2742
1.88	2742	2744	2746	2749	2751	2753	2755	2758	2760	2762	2765
1.89	2765	2767	2769	2772	2774	2776	2778	2781	2783	2785	2788
1.90	0.2788	2790	2792	2794	2797	2799	2801	2804	2806	2808	2810
1.91	2810	2813	2815	2817	2819	2822	2824	2826	2828	2831	2833
1.92	2833	2835	2838	2840	2842	2844	2847	2849	2851	2853	2856
1.93	2856	2858	2860	2862	2865	2867	2869	2871	2874	2876	2878
1.94	2878	2880	2882	2885	2887	2889	2891	2894	2896	2898	2900
1.95	2900	2903	2905	2907	2909	2911	2914	2916	2918	2920	2923
1.96	2923	2925	2927	2929	2931	2934	2936	2938	2940	2942	2945
1.97	2945	2947	2949	2951	2953	2956	2958	2960	2962	2964	2967
1.98	2967	2969	2971	2973	2975	2978	2980	2982	2984	2986	2989
1.99	2989	2991	2993	2995	2997	2999	3002	3004	3006	3008	3010

Table 10. Logarithms to the Base 10

These two pages give the common logarithms of numbers between 1 and 10, correct to four places. Moving the decimal point n places to the right (or left) in the number is equivalent to adding n (or $-n$) to the logarithm. Thus, log 0.017453 = 0.2419 − 2 [= $\bar{2}$.2419].

To facilitate interpolation, the tenths of the tabular differences are given at the end of each line, so that the differences themselves need not be considered. In using these aids, first find the nearest tabular entry, and then add (to move to the right) or subtract (to move to the left), as the case may require.

	0	1	2	3	4	5	6	7	8	9	10	Tenths of the Tabular Difference 1 2 3 4 5
1.0	0.0000	0043	0086	0128	0170	0212	0253	0294	0334	0374	0414	
1.1	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755	0792	
1.2	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106	1139	
1.3	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430	1461	To avoid Interpolation in the first ten lines, use the special table on the preceding page.
1.4	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732	1761	
1.5	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014	2041	
1.6	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279	2304	
1.7	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529	2553	
1.8	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	2788	
1.9	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	3010	
2.0	0.3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	3222	2 4 6 8 11
2.1	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	3424	2 4 6 8 10
2.2	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598	3617	2 4 6 8 10
2.3	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784	3802	2 4 5 7 9
2.4	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962	3979	2 4 5 7 9
2.5	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133	4150	2 3 5 7 9
2.6	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298	4314	2 3 5 7 8
2.7	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456	4472	2 3 5 6 8
2.8	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609	4624	2 3 5 6 8
2.9	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757	4771	1 3 4 6 7
3.0	0.4771	4786	4800	4814	4829	4843	4857	4871	4886	4900	4914	1 3 4 6 7
3.1	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038	5051	1 3 4 6 7
3.2	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172	5185	1 3 4 5 7
3.3	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302	5315	1 3 4 5 6
3.4	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428	5441	1 3 4 5 6
3.5	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551	5563	1 2 4 5 6
3.6	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670	5682	1 2 4 5 6
3.7	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786	5798	1 2 3 5 6
3.8	5798	5809	5821	5832	5843	5855	5866	5877	5888	5899	5911	1 2 3 5 6
3.9	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010	6021	1 2 3 4 6
4.0	0.6021	6031	6042	6053	6064	6075	6085	6096	6107	6117	6128	1 2 3 4 5
4.1	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222	6232	1 2 3 4 5
4.2	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325	6335	1 2 3 4 5
4.3	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425	6435	1 2 3 4 5
4.4	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522	6532	1 2 3 4 5
4.5	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618	6628	1 2 3 4 5
4.6	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712	6721	1 2 3 4 5
4.7	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803	6812	1 2 3 4 5
4.8	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893	6902	1 2 3 4 4
4.9	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981	6990	1 2 3 4 4

Table 10. Logarithms to the Base 10

	0	1	2	3	4	5	6	7	8	9	10	Tenths of the Tabular Difference 1	2	3	4	5
5.0	0.6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	7076	1	2	3	3	4
5.1	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152	7160	1	2	3	3	4
5.2	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235	7243	1	2	2	3	4
5.3	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316	7324	1	2	2	3	4
5.4	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396	7404	1	2	2	3	4
5.5	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	7482	1	2	2	3	4
5.6	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551	7559	1	2	2	3	4
5.7	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627	7634	1	2	2	3	4
5.8	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701	7709	1	1	2	3	4
5.9	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774	7782	1	1	2	3	4
6.0	0.7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	7853	1	1	2	3	4
6.1	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917	7924	1	1	2	3	4
6.2	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987	7993	1	1	2	3	3
6.3	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055	8062	1	1	2	3	3
6.4	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122	8129	1	1	2	3	3
6.5	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	8195	1	1	2	3	3
6.6	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254	8261	1	1	2	3	3
6.7	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319	8325	1	1	2	3	3
6.8	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382	8388	1	1	2	3	3
6.9	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445	8451	1	1	2	3	3
7.0	0.8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	8513	1	1	2	2	3
7.1	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567	8573	1	1	2	2	3
7.2	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627	8633	1	1	2	2	3
7.3	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686	8692	1	1	2	2	3
7.4	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745	8751	1	1	2	2	3
7.5	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	8808	1	1	2	2	3
7.6	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859	8865	1	1	2	2	3
7.7	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915	8921	1	1	2	2	3
7.8	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971	8976	1	1	2	2	3
7.9	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025	9031	1	1	2	2	3
8.0	0.9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	9085	1	1	2	2	3
8.1	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133	9138	1	1	2	2	3
8.2	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186	9191	1	1	2	2	3
8.3	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238	9243	1	1	2	2	3
8.4	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289	9294	1	1	2	2	3
8.5	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	9345	1	1	2	2	3
8.6	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390	9395	1	1	2	2	3
8.7	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440	9445	0	1	1	2	2
8.8	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489	9494	0	1	1	2	2
8.9	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538	9542	0	1	1	2	2
9.0	0.9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	9590	0	1	1	2	2
9.1	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633	9638	0	1	1	2	2
9.2	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680	9685	0	1	1	2	2
9.3	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727	9731	0	1	1	2	2
9.4	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773	9777	0	1	1	2	2
9.5	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	9823	0	1	1	2	2
9.6	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863	9868	0	1	1	2	2
9.7	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908	9912	0	1	1	2	2
9.8	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952	9956	0	1	1	2	2
9.9	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996		0	1	1	2	2

Table 11. Logarithms to the Base e

These two pages give the natural (hyperbolic, or Napierian) logarithms of numbers between 1 and 10, correct to four places. Moving the decimal point n places to the right (or left) in the number is equivalent to adding n times 2.3026 (or n times $\bar{3}.6974$) to the logarithm.

1	**2.3026**	1	**0.6974–3**
2	4.6052	2	0.3948–5
3	6.9078	3	0.0922–7
4	9.2103	4	0.7897–10
5	11.5129	5	0.4871–12
6	13.8155	6	0.1845–14
7	16.1181	7	0.8819–17
8	18.4207	8	0.5793–19
9	20.7233	9	0.2767–21

	0	1	2	3	4	5	6	7	8	9	10	Tenths of the Tabular Difference 1 2 3 4 5
1.0	0.0000	0100	0198	0296	0392	0488	0583	0677	0770	0862	0.0953	10 19 29 38 48
1.1	0953	1044	1133	1222	1310	1398	1484	1570	1655	1740	1823	9 17 26 35 44
1.2	1823	1906	1989	2070	2151	2231	2311	2390	2469	2546	2624	8 16 24 32 40
1.3	2624	2700	2776	2852	2927	3001	3075	3148	3221	3293	3365	7 15 22 30 37
1.4	3365	3436	3507	3577	3646	3716	3784	3853	3920	3988	4055	7 14 21 28 34
1.5	4055	4121	4187	4253	4318	4383	4447	4511	4574	4637	4700	6 13 19 26 32
1.6	4700	4762	4824	4886	4947	5008	5068	5128	5188	5247	5306	6 12 18 24 30
1.7	5306	5365	5423	5481	5539	5596	5653	5710	5766	5822	5878	6 11 17 23 29
1.8	5878	5933	5988	6043	6098	6152	6206	6259	6313	6366	6419	5 11 16 22 27
1.9	6419	6471	6523	6575	6627	6678	6729	6780	6831	6881	0.6931	5 10 15 21 26
2.0	0.6931	6981	7031	7080	7129	7178	7227	7275	7324	7372	7419	5 10 15 20 24
2.1	7419	7467	7514	7561	7608	7655	7701	7747	7793	7839	7885	5 9 14 19 23
2.2	7885	7930	7975	8020	8065	8109	8154	8198	8242	8286	8329	4 9 13 18 22
2.3	8329	8372	8416	8459	8502	8544	8587	8629	8671	8713	8755	4 9 13 17 21
2.4	8755	8796	8838	8879	8920	8961	9002	9042	9083	9123	9163	4 8 12 16 20
2.5	9163	9203	9243	9282	9322	9361	9400	9439	9478	9517	9555	4 8 12 16 20
2.6	9555	9594	9632	9670	9708	9746	9783	9821	9858	9895	0.9933	4 8 11 15 19
2.7	0.9933	9969	0006	0043	0080	0116	0152	0188	0225	0260	1.0296	4 7 11 15 18
2.8	1.0296	0332	0367	0403	0438	0473	0508	0543	0578	0613	0647	4 7 11 14 18
2.9	0647	0682	0716	0750	0784	0818	0852	0886	0919	0953	1.0986	3 7 10 14 17
3.0	1.0986	1019	1053	1086	1119	1151	1184	1217	1249	1282	1314	3 7 10 13 16
3.1	1314	1346	1378	1410	1442	1474	1506	1537	1569	1600	1632	3 6 10 13 16
3.2	1632	1663	1694	1725	1756	1787	1817	1848	1878	1909	1939	3 6 9 12 15
3.3	1939	1969	2000	2030	2060	2090	2119	2149	2179	2208	2238	3 6 9 12 15
3.4	2238	2267	2296	2326	2355	2384	2413	2442	2470	2499	2528	3 6 9 12 14
3.5	2528	2556	2585	2613	2641	2669	2698	2726	2754	2782	2809	3 6 8 11 14
3.6	2809	2837	2865	2892	2920	2947	2975	3002	3029	3056	3083	3 5 8 11 14
3.7	3083	3110	3137	3164	3191	3218	3244	3271	3297	3324	3350	3 5 8 11 13
3.8	3350	3376	3403	3429	3455	3481	3507	3533	3558	3584	3610	3 5 8 10 13
3.9	3610	3635	3661	3686	3712	3737	3762	3788	3813	3838	1.3863	3 5 8 10 13
4.0	1.3863	3888	3913	3938	3962	3987	4012	4036	4061	4085	4110	2 5 7 10 12
4.1	4110	4134	4159	4183	4207	4231	4255	4279	4303	4327	4351	2 5 7 10 12
4.2	4351	4375	4398	4422	4446	4469	4493	4516	4540	4563	4586	2 5 7 9 12
4.3	4586	4609	4633	4656	4679	4702	4725	4748	4770	4793	4816	2 5 7 9 11
4.4	4816	4839	4861	4884	4907	4929	4951	4974	4996	5019	5041	2 4 7 9 11
4.5	5041	5063	5085	5107	5129	5151	5173	5195	5217	5239	5261	2 4 7 9 11
4.6	5261	5282	5304	5326	5347	5369	5390	5412	5433	5454	5476	2 4 6 9 11
4.7	5476	5497	5518	5539	5560	5581	5602	5623	5644	5665	5686	2 4 6 8 11
4.8	5686	5707	5728	5748	5769	5790	5810	5831	5851	5872	5892	2 4 6 8 10
4.9	5892	5913	5933	5953	5974	5994	6014	6034	6054	6074	1.6094	2 4 6 8 10

Table 11. $\log_e$ (Base e = 2.71828+)

	0	1	2	3	4	5	6	7	8	9	10	Tenths of the Tabular Difference 1	2	3	4	5
5.0	1.6094	6114	6134	6154	6174	6194	6214	6233	6253	6273	6292	2	4	6	8	10
5.1	6292	6312	6332	6351	6371	6390	6409	6429	6448	6467	6487	2	4	6	8	10
5.2	6487	6506	6525	6544	6563	6582	6601	6620	6639	6658	6677	2	4	6	8	10
5.3	6677	6696	6715	6734	6752	6771	6790	6808	6827	6845	6864	2	4	6	7	9
5.4	6864	6882	6901	6919	6938	6956	6974	6993	7011	7029	7047	2	4	6	7	9
5.5	7047	7066	7084	7102	7120	7138	7156	7174	7192	7210	7228	2	4	5	7	9
5.6	7228	7246	7263	7281	7299	7317	7334	7352	7370	7387	7405	2	4	5	7	9
5.7	7405	7422	7440	7457	7475	7492	7509	7527	7544	7561	7579	2	3	5	7	9
5.8	7579	7596	7613	7630	7647	7664	7681	7699	7716	7733	7750	2	3	5	7	9
5.9	7750	7766	7783	7800	7817	7834	7851	7867	7884	7901	1.7918	2	3	5	7	8
6.0	1.7918	7934	7951	7967	7984	8001	8017	8034	8050	8066	8083	2	3	5	7	8
6.1	8083	8099	8116	8132	8148	8165	8181	8197	8213	8229	8245	2	3	5	7	8
6.2	8245	8262	8278	8294	8310	8326	8342	8358	8374	8390	8405	2	3	5	6	8
6.3	8405	8421	8437	8453	8469	8485	8500	8516	8532	8547	8563	2	3	5	6	8
6.4	8563	8579	8594	8610	8625	8641	8656	8672	8687	8703	8718	2	3	5	6	8
6.5	8718	8733	8749	8764	8779	8795	8810	8825	8840	8856	8871	2	3	5	6	8
6.6	8871	8886	8901	8916	8931	8946	8961	8976	8991	9006	9021	2	3	5	6	8
6.7	9021	9036	9051	9066	9081	9095	9110	9125	9140	9155	9169	1	3	4	6	7
6.8	9169	9184	9199	9213	9228	9242	9257	9272	9286	9301	9315	1	3	4	6	7
6.9	9315	9330	9344	9359	9373	9387	9402	9416	9430	9445	1.9459	1	3	4	6	7
7.0	1.9459	9473	9488	9502	9516	9530	9544	9559	9573	9587	9601	1	3	4	6	7
7.1	9601	9615	9629	9643	9657	9671	9685	9699	9713	9727	9741	1	3	4	6	7
7.2	9741	9755	9769	9782	9796	9810	9824	9838	9851	9865	1.9879	1	3	4	6	7
7.3	1.9879	9892	9906	9920	9933	9947	9961	9974	9988	0001	2.0015	1	3	4	5	7
7.4	2.0015	0028	0042	0055	0069	0082	0096	0109	0122	0136	0149	1	3	4	5	7
7.5	0149	0162	0176	0189	0202	0215	0229	0242	0255	0268	0281	1	3	4	5	7
7.6	0281	0295	0308	0321	0334	0347	0360	0373	0386	0399	0412	1	3	4	5	7
7.7	0412	0425	0438	0451	0464	0477	0490	0503	0516	0528	0541	1	3	4	5	6
7.8	0541	0554	0567	0580	0592	0605	0618	0631	0643	0656	0669	1	3	4	5	6
7.9	0669	0681	0694	0707	0719	0732	0744	0757	0769	0782	2.0794	1	3	4	5	6
8.0	2.0794	0807	0819	0832	0844	0857	0869	0882	0894	0906	0919	1	2	4	5	6
8.1	0919	0931	0943	0956	0968	0980	0992	1005	1017	1029	1041	1	2	4	5	6
8.2	1041	1054	1066	1078	1090	1102	1114	1126	1138	1150	1163	1	2	4	5	6
8.3	1163	1175	1187	1199	1211	1223	1235	1247	1258	1270	1282	1	2	4	5	6
8.4	1282	1294	1306	1318	1330	1342	1353	1365	1377	1389	1401	1	2	4	5	6
8.5	1401	1412	1424	1436	1448	1459	1471	1483	1494	1506	1518	1	2	4	5	6
8.6	1518	1529	1541	1552	1564	1576	1587	1599	1610	1622	1633	1	2	3	5	6
8.7	1633	1645	1656	1668	1679	1691	1702	1713	1725	1736	1748	1	2	3	5	6
8.8	1748	1759	1770	1782	1793	1804	1815	1827	1838	1849	1861	1	2	3	5	6
8.9	1861	1872	1883	1894	1905	1917	1928	1939	1950	1961	2.1972	1	2	3	4	6
9.0	2.1972	1983	1994	2006	2017	2028	2039	2050	2061	2072	2083	1	2	3	4	6
9.1	2083	2094	2105	2116	2127	2138	2148	2159	2170	2181	2192	1	2	3	4	5
9.2	2192	2203	2214	2225	2235	2246	2257	2268	2279	2289	2300	1	2	3	4	5
9.3	2300	2311	2322	2332	2343	2354	2364	2375	2386	2396	2407	1	2	3	4	5
9.4	2407	2418	2428	2439	2450	2460	2471	2481	2492	2502	2513	1	2	3	4	5
9.5	2513	2523	2534	2544	2555	2565	2576	2586	2597	2607	2618	1	2	3	4	5
9.6	2618	2628	2638	2649	2659	2670	2680	2690	2701	2711	2721	1	2	3	4	5
9.7	2721	2732	2742	2752	2762	2773	2783	2793	2803	2814	2824	1	2	3	4	5
9.8	2824	2834	2844	2854	2865	2875	2885	2895	2905	2915	2925	1	2	3	4	5
9.9	2925	2935	2946	2956	2966	2976	2986	2996	3006	3016	2.3026	1	2	3	4	5